

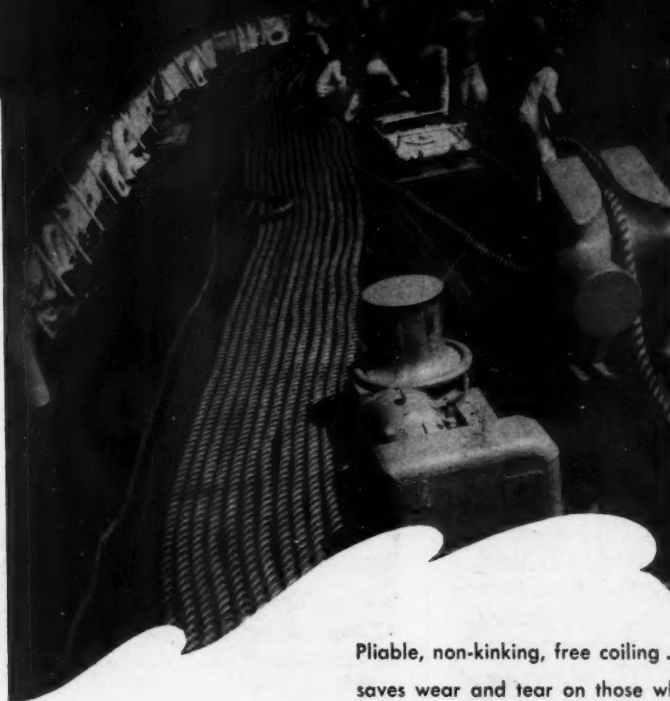
AUG 28 1953

ATLANTIC FISHERMAN

AUGUST
1953

SERVING ATLANTIC COAST • GULF OF MEXICO • GREAT LAKES

Easier to Handle
... Even When Wet



Pliable, non-kinking, free coiling . . . Columbian Rope saves wear and tear on those who handle it . . . because it is thoroughly lubricated for greater flexibility, less wear and tear on *itself*. Every hard-working foot is guaranteed.



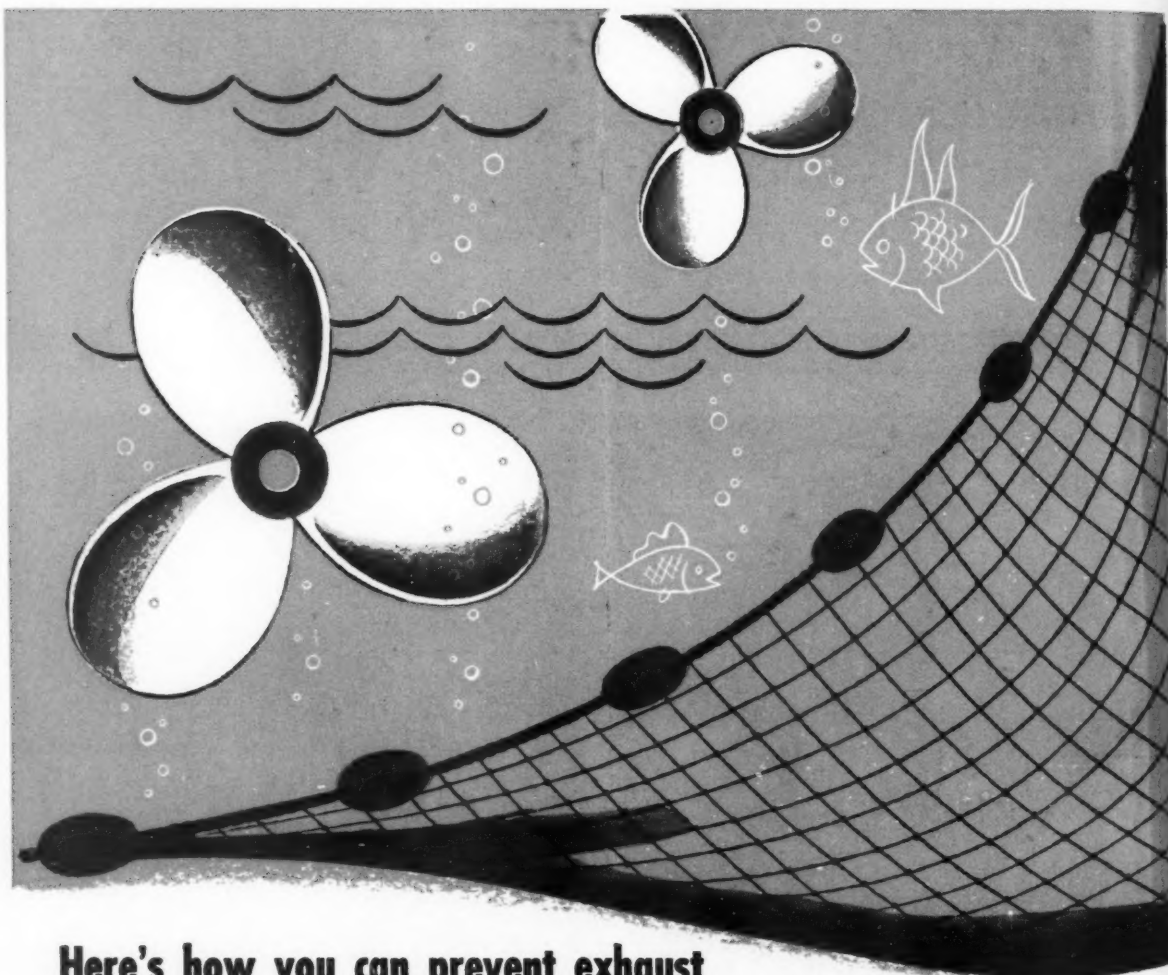
COLUMBIAN ROPE COMPANY
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THE ROPE WITH THE RED, WHITE AND BLUE MARKERS

Boston Office and Warehouse

38 Commercial Wharf



Here's how you can prevent exhaust port-fouling problems... Minimize over-all engine wear with **SHELL TALONA OIL**

Now—by using Shell Talona Oil, operators of fishing craft find they completely eliminate port-fouling problems and at the same time minimize engine wear. Continued use of Shell Talona Oil has lengthened time between overhauls to an extent formerly thought impossible.

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In addition to freedom from port-fouling,

Shell Talona Oil gives all these advantages to fishing craft operators.

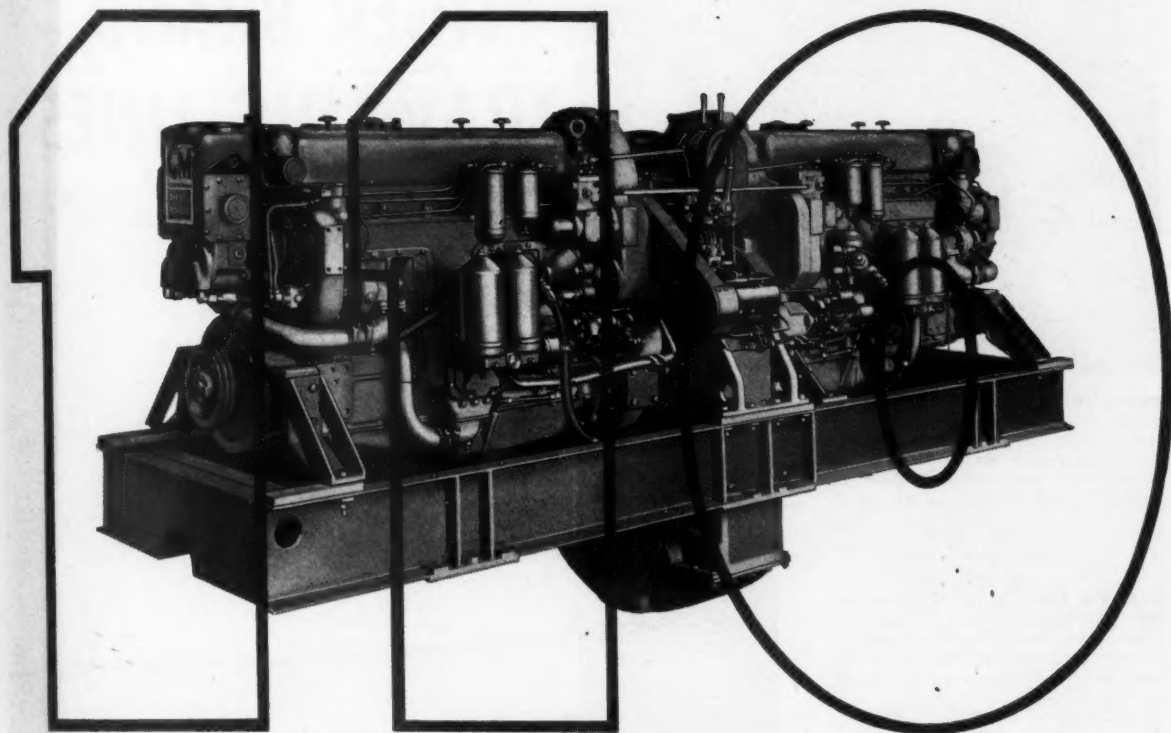
1. Superior anti-wear properties
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Get the full story about Shell Talona Oil. See the Shell Marine dealer in your port.



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NOW—A NEW 409—530 S.H.P. GENERAL MOTORS DIESEL



The "110" Tandem Twin

★ 409 Continuous Shaft Horsepower

★ 20% to 40% Lower Cost

★ Twin Engine Dependability

★ Clean, Compact Lines—Lighter Weight

Meet the newest member of the General Motors Marine Diesel family—the power-packed "110" Tandem Twin.

Now you can have the *double dependability* of a more powerful GM Diesel Twin—530 horsepower for pleasure craft—a full 409 horsepower at the shaft for round-the-clock, heavy-duty work in tugs and fishing boats.

Like all GM Diesels, this new "110" Twin operates on the 2-cycle principle—delivers smoother, steadier, more responsive power. It's more flexible, too, because you can shut off one of the engines when not needed. One engine running alone will propel a single-screw boat at 80% of its normal speed.

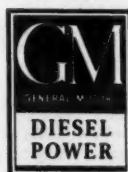
The slim, low silhouette of its tandem arrangement lets this unit fit in a smaller engine room, leaves more room, more space for fuel and pay load. And its clean, simple design, with ready accessibility for servicing, means easier, lower-cost maintenance. Its parts cost much less too.

But the big news is its low price. Here's a reserve of GM's time-proved Diesel power in a compact, lightweight

marine unit that gives you the extra dependability and safety of twin engine operation—all at a price that's 20% to 40% less than any other Diesel of comparable power.

The new "110" Tandem Twin is available with port or starboard rotation; finger-tip GM hydraulic reversing; reduction gears up to 6:1; front power take-off for either engine and push-button electric starting. Your local GM Diesel distributor will gladly give you full details. Call him today, or write us for complete specifications.

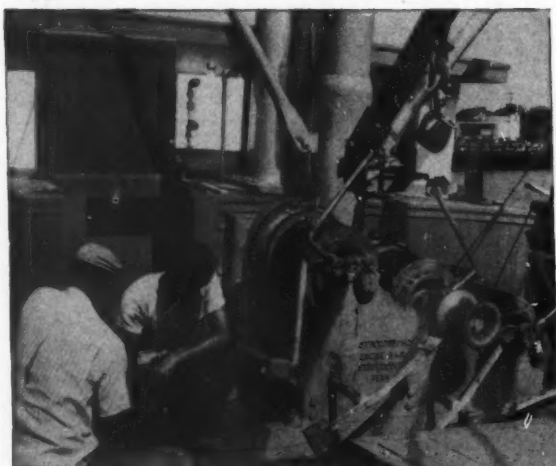
Single Engines... 16 to 275 H.P. Multiple Units... Up to 840 H.P.



DETROIT DIESEL
ENGINE DIVISION

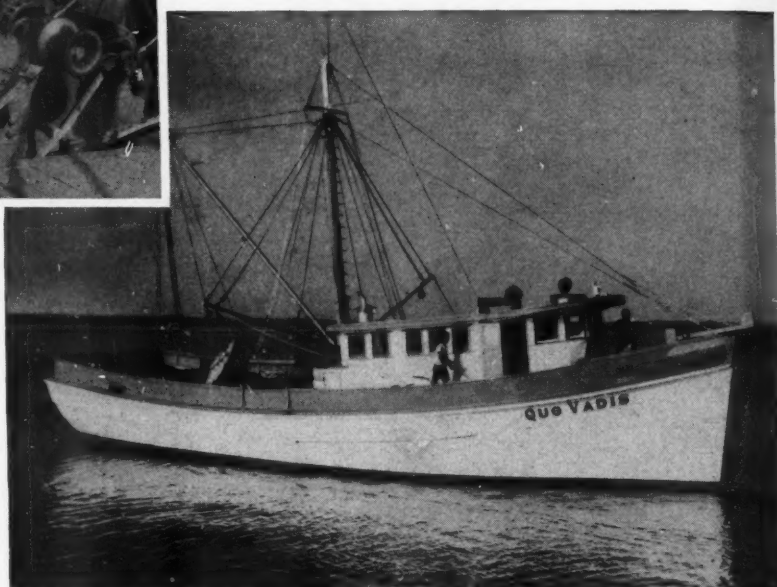
GENERAL MOTORS • DETROIT 28, MICHIGAN

Heavy galvanizing reduces corrosion in these **TIGER BRAND TRAWLING LINES**



THIS 3-DRUM STROUDSBURG HOIST is wound with $\frac{3}{8}$ " Tiger Brand Trawling Line. Heavy galvanizing protects this line from corrosion. And it has the great strength and wear resistance needed to hold up in hard service.

THIS TRIM CRAFT is the 67-ft. trawler, *Quo Vadis*, owned by Mr. J. T. Hord. Mr. Hord knows that corrosion resistance is the most important property of fishing ropes, so he uses American Tiger Brand Trawling Lines.



• Corrosion is the worst enemy of the trawling lines on the *Quo Vadis*. But the owner, Mr. J. T. Hord of Rockport, Texas, is getting long service from Tiger Brand Lines.

Every wire in a Tiger Brand Trawling Line has a heavy, uniform coating of zinc that resists the corrosive action of salt air and brine. In addition, the line is thoroughly lubricated before it leaves the factory. This

gives it even greater protection.

Many Tiger Brand Ropes have been especially designed for use on fishing boats. In addition to great corrosion resistance, they have a good combination of strength, toughness, and flexibility.

Call your local American Wire Rope Distributor next time you need rope. He has just the right rope for every job aboard your boat.

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UNITED STATES STEEL

Editorial

World-wide Interest in Boat Performance

What promises to be one of the most informative programs ever arranged on the design, construction, equipping and operation of fishing boats, will be presented at the International Fishing Vessel Congress in Miami Beach, Fla., November 16-20.

Sponsored by the Food and Agriculture Organization of the United Nations (FAO), the Vessel Congress is being staged in two sessions, with an earlier meeting scheduled at Paris in October for the benefit of fishing industry representatives in the Eastern hemisphere.

The unique conference will provide an opportunity for fishing boat designers, builders, owners and equipment manufacturers from countries throughout the world to exchange technical details on the latest developments.

As FAO points out, world fishing is an important part of world feeding, and if all countries are to make the most of the harvest of the seas, there must be a measure of co-ordination in the types of fishing vessels, methods of propulsion and the equipment they employ to take their catch.

Fishing is fundamentally a primitive pursuit, and it is only natural that in the course of years it should have grown up in a series of relatively local industries, about which there has been little interchange of information, as to either the methods employed or the design and construction of fishing vessels used.

About 30 technical papers covering a wide variety of fishing vessel topics already are scheduled for delivery at the meeting. Subjects include design and construction of American and European trawlers, tuna vessels, and small fishing craft; modernization of fishing boats in Chile, India, and Pakistan; problems concerning stability of tuna clippers; effects of loading on the trim of trawlers; selection of engines; financing of fishing vessels; shape of boats; methods and material of construction; deck gear; arrangements for handling the catch on board; freezing at sea, and processing on factory ships. The economical aspects of various types of vessels will be discussed, and there will be papers on safety at sea, tank testing techniques, and the owner's viewpoint of what is needed in a fishing vessel.

One of the features of the meetings is expected to be the contribution made by countries which are sometimes considered less advanced in technical matters. For example, Chile has much to offer in the mechanization of sailing fishing boats suitable for many countries of Latin America and the Far East. Pakistan fishing craft have what is said to be the world's best hull shape.

Four other fishery organizations will hold meetings concurrently with the FAO Fishing Vessel Congress in Miami. The Gulf and Caribbean Fisheries Institute will have its sixth annual session, the Shrimp Association of the Americas will sponsor a quarterly meeting, the South-eastern Fisheries Association will call a regular meeting, and the Atlantic States Marine Fisheries Commission will hold a Southern Section get-together conference.

The bringing together of these groups will permit personal communication among individuals representing all aspects of the industry, from both scientific and practical standpoints.

With the large investment required today for floating equipment, it behooves the industry to build boats that have maximum efficiency. It also is desirable to have boats that are designed and equipped for economical operation and maintenance. While the numerous kinds of fishing in various parts of the world require different types of boats, there are many basic principles of design and construction that can be profitably utilized.

By taking advantage of advances that have been made, and pooling the technical knowledge of experts in the field, the industry can build boats that will do a better job of fishing at lower cost.

ATLANTIC FISHERMAN

REGISTERED U. S. PATENT OFFICE

Serving the Commercial Fishing Industry on
Atlantic Coast, Gulf of Mexico, Great Lakes

VOL. XXXIV

AUGUST 1953

NO. 7

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South Pacific to Gloucester Run

by Tuna Clipper "SUN JASON"

demonstrates the Stamina of SUPERIOR Marine Diesel



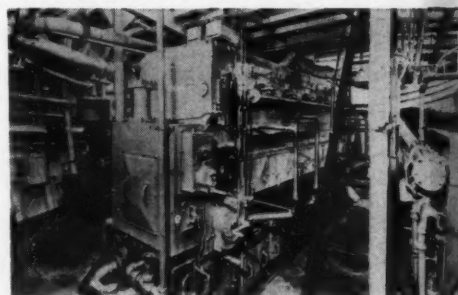
From the fishing grounds off Chile and Colombia to Gloucester, the "Sun Jason" logged 2870 miles. During 117 days at sea her 840 horsepower Superior Marine Diesel required no maintenance—even though the run from the Panama Canal to Gloucester was made in nine days, non-stop.

Captain Lazaro Massadocked at Davis Brothers Fisheries Company with 600,000 pounds of tuna—the first cargo of Pacific tuna ever unloaded at Gloucester. After 45 days of fishing the "Sun Jason" took the record-breaking cargo to Gloucester in 12 days.

Throughout the entire cruise from her home port at San Diego to the South Pacific and then to New England, the "Sun Jason's" Model "60" Supercharged Superior Diesel performed dependably and efficiently, demonstrating, once again, the kind of service that's built into Superior and Atlas Diesels.

On the Atlantic and Pacific Coasts, in the Gulf of Mexico, and in fishing waters throughout the world, you can get lots of additional proof of the efficiency and stamina of Superior and Atlas Marine Diesels. Ask your Superior-Atlas Representative or write Springfield for descriptive bulletins.

Clipper "Sun Jason" docked at Gloucester, Massachusetts, after bringing 600,000 pounds of tuna from the West Coast.



Engine Room view of the "Sun Jason" which shows her Superior Marine Diesel, Model "60."



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
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power performance for your all-important marine diesel!

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Horsepower for horsepower, you can't buy a better marine engine for smooth, dependable operation and more years of hard service at low upkeep cost than a compact, power-packed Chris-Craft! Read what this user says:



"Bub" Merrill

"Bub" Merrill, General Mgr. of the L. C. Merrill Dredging Co., says, "Time means money in our operation and the fact that our Chris-Craft 160 furnishes dependable power in any weather is important! Trouble won't wait for fair weather and our Chris-Craft gives us steady year-round performance even with loads ranging to 240,000 pounds, on our 167' barge. We've been using Chris-Craft engines for a quarter of a century and have found that for economical, trouble-free service Chris-Craft is tops."

Chris-Craft Marine Engines are available in 60, 95, 105, 120, 130, 131, 145, 158 and 160 h.p. with reduction drives and opposite rotation for most models. See your Chris-Craft Dealer or mail coupon for FREE catalog today! Buy NOW!

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Sounding-Lead

Research appropriations for Fish and Wildlife Service were restored by Congress to full amount recommended by Senate. In fact, two additional items proposed by Senate—\$200,000 for lamprey eel investigations in Great Lakes (making total of \$400,000 available for this work) and \$260,000 for salmon research on Columbia River—were agreed upon by conferees of House and Senate.

As result of fund restoration, Hampton, Va. Market News Office will remain open; technological laboratory at University of Maryland will not close; technological fishery programs at other laboratories will continue on full scale; the *Delaware* will continue the freezing of fish at sea investigations off New England; the *Oregon* will proceed on valuable Gulf investigations; the *Cobb* will go ahead on Pacific coast research; and the bluefin tuna survey will continue in New England. Other pending biological investigations will proceed without curtailment.

Canned fish pack in United States, Alaska and Hawaii in 1952 amounted to more than 815 million lbs., valued at \$306 million to packers. In addition, fishery by-products, worth \$68 million, were processed.

Compared with 1951, last year's production of canned products was slightly larger both in quantity and value. These increases resulted principally from larger packs of tuna and Maine sardines. Tuna worth \$113 million, headed the list as the most valuable canned item, followed by canned salmon at \$98 million, and sardines at \$22 million.

Value of by-products in 1952 was about 2 percent less than in previous year. Fish meal, which is used largely in poultry feed, was most valuable by-product, worth \$27 million.

California and Alaska accounted for about 57 percent of total value of canned fishery products and by-products in 1952. Canned products were packed in 445 plants in 25 States, Alaska and Hawaii. By-products were processed in 255 plants in 25 States and Alaska.

Fillet import study by Secretary of Treasury is proposed in bill introduced by Congressman William H. Bates of Massachusetts. The measure calls for Treasury chief to report to House on fillet importations during 1952 and first six months of this year, within 60 days of passage of bill. Congressman Bates says he has received complaints that domestic fishing industry is being injured by such imports, and that the imports allegedly are being sold in this country at less than fair market value.

Additions to fishing fleet of Atlantic coast, Gulf of Mexico and Great Lakes during first five months of 1953 totalled 181 vessels of 5 net tons and over, which was approximately 50 more than in same period of previous year. Gulf of Mexico led with 92, compared to only 43 in same five months of 1952. South Atlantic fleet additions jumped from 33 to 40, while 5 fishing craft joined Great Lakes fleet, 1 more than in 1952.

In New England, fleet additions amounted to 10, which was exactly same number as in previous year. Number of Middle Atlantic vessels joining fleet fell to 9 from 16, while Chesapeake additions, at 25, were two less than in 1952.

Social Security coverage would be extended to some 30,000 U. S. fishermen performing service on vessels of 10 net tons or less, under bill filed by Senator Kennedy of Massachusetts and 10 other Senators. In addition to category of fishermen who would be covered, measure brings in citizens and resident aliens who perform service on vessels or aircraft of foreign registry when they do these services for an American employer.

Fish meal available to U. S. feed manufacturers during first five months of 1953 was about 40% less than during same period of 1952. Domestic fish meal production for January-May, 1953 totalled 26,191 tons, and was down about 21%; while fish meal imports of 61,177 tons showed drop of approximately 45% from corresponding period of year ago. Unfavorable weather at opening of menhaden fishing season accounted for most of decline in domestic production.

Outer continental shelf bill, which "asserts the exclusive jurisdiction and control of the Federal Government of the United States over the sea bed and subsoil of the outer continental shelf and provides for the development of its vast mineral resources" has been passed by both Houses of Congress. In an attempt to meet wishes of fishing industry, following language was included in bill: "This act shall be construed in such manner that the character as high seas of the waters above the outer continental shelf and the right to navigation and fishing therein shall not be affected."

Underwater sound recordings and tests with underwater television were made on recent 10-day cruise of the *Pompano*, 57' exploratory fishing research vessel operated by the Fish & Wildlife Service. The cruise was completed at Miami, Fla., on June 16. Tests were conducted in vicinity of Bimini Islands in Western Bahamas.

Underwater sound recordings were obtained on schools of bluefin tuna, which migrate northward along western shore of Bimini group beginning about May 15 until around June 15 each year. The recordings will be analyzed in near future at Service's gear research station at University of Miami Marine Laboratory to determine if they contain any sounds attributable to tuna. If recordings are found to contain sounds characteristic of the fish, additional work will be undertaken to develop special devices which will help commercial fishermen locate schools of tuna (and possibly other fish) by sounds which they produce in water.

Preliminary tests also were carried out with industrial television equipment adapted for underwater use to determine its suitability for studying fishing gear in operation. Camera was lowered in watertight housing and trained on sections of bottom 15 to 20' away from camera lens. Small fish, seaweed, and coral formations on the bottom in depths up to 40' were visible on the monitor screen in good detail. The tests indicate that the equipment, with certain improvements such as remote control for changing the iris opening, can be developed into useful tool for studying otter trawls and other types of fishing gear in operation.

Possibilities of tuna fishing off Atlantic coast of Colombia are being explored by tuna bait boat owned by large California cannery. Barranquilla, Colombia fish cannery that is interested in explorations of bait boat also wants to encourage some U. S. firm to send modern purse seiner to fish off Colombia. At present fish landings in that country are very light due to primitive methods used by local fishermen.

Necessary arrangements with Colombian Government to permit bait boat to explore off Colombian coast were made by the Colombian cannery firm. This company hopes that should explorations prove encouraging, some arrangements could be made to divide the catch between the California cannery and the Colombian firms.

Canadian landings and landed value in sea-fisheries (not including Newfoundland) during first six months of year amounted to 380,683,000 lbs. and \$23,291,000, which were 38.0 and 11.7 percent lower respectively than for same period of last year.

On Atlantic coast of Canada, production during six-month period totalled 321,213,000 lbs. worth \$18,006,000, which was decline of 16.0 percent in volume and rise of 6.7 percent in value.

NEW: Prime Quality!

•built to fishermen's specifications

Rubber clothing designed with all the features that commercial fishermen, who constantly wear-test our garments, tell us are desirable and useful. Vulcanized watertight seams, roomy cut for maximum comfort; specially developed compounds provide greater resistance to sun, water and abrasion. In 3 colors: Black, Yellow, Olive Drab.

U.S. SQUAM HAT

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- Collar cut for maximum comfort.
- Extra sleeve facing for longer wear.
- Sleeve "cut-off" prevents curling, raveling.
- Jacket has fly front.
- Eyelet drainage on side pocket.
- Rust-resistant hardware throughout both garments.

TRAWLER BOOTS

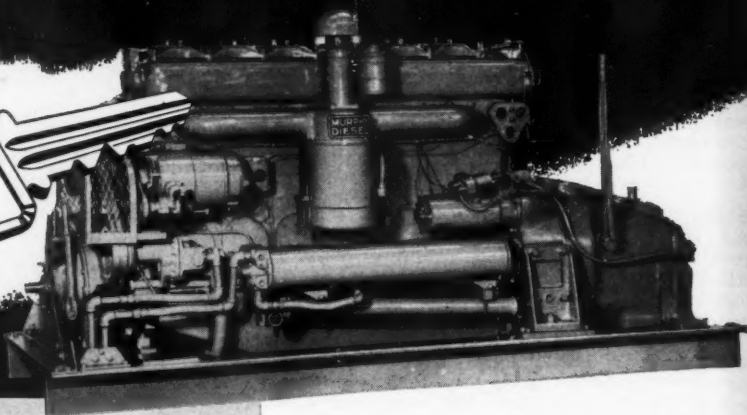
- black thigh
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Here's your Key TO MORE PROFITABLE FISHING



The "Three Brothers" another Murphy powered shrimp boat. A 60 footer, she is owned by Bryant Seafoods Company of Bayou La Batre, Alabama, and is powered by a 125 H.P. Murphy Diesel. This is the second of their three company owned fishing boats to be powered with Murphy Diesel.

267

THERE are a lot of factors that determine how profitable your fishing operations will be. Some you can control—others you can't. But you can do something about power for your boat. You can put in an engine that's dependable under all conditions, economical on fuel and maintenance, rugged and responsive when you need power in a hurry. One engine fills this bill—the Murphy Diesel.

The Murphy Diesel is built like a big diesel. It's a "true" diesel with unit fuel injection, four valves per cylinder, dual overhead camshafts and other proved design advantages. For you, they all add up to better performance, longer engine life and lower overall economy. The full story is given in the booklet "10 Reasons Why Your Next Engine Should be a Murphy." Ask your Murphy Diesel Dealer for a copy or write direct.

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over half a century Wickwire Rope has been an outstanding favorite with men in the mining and petroleum industries. Like users in numerous other lines of business, these men know that for unfailing performance, longer life and more economical service—there's nothing to match the quality and care that go into the making of WICKWIRE ROPE.

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UST, 1953



He Was the Last Man

Pfc. Hector A. Cafferata Jr.,

USMCR

Medal of Honor



IT WAS DURING the Chosin reservoir fighting. Against F Company's hill position, Reds were attacking in regimental strength. The last of Private Cafferata's fire team-mates had just become a casualty, leaving a gap in the defense line. If the enemy could exploit it, they could smash the entire perimeter.

Exposing himself to devastating fire, Private Cafferata maneuvered along the line. Alone, he killed fifteen Chinese, routed the rest, and held till reinforcements plugged the hole.

The Reds hit again. A grenade fell into a gully full of wounded. Private Cafferata hurled it back, saving the men but suffering severe wounds. Ignoring intense pain, he still fought on until a sniper got him.

"If we really want to protect ourselves from the Commies," says Private Cafferata, now retired because of wounds, "we've got to go all out. And one thing all of us at home can do—*should do*—is invest in our country's Defense Bonds. Sure, Bonds are our personal savings for a rainy day. But they're more—they're muscle behind our G.I.s' bayonets, too!"

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Now E Bonds pay 3%! Now, improved Series E Bonds start paying interest after 6 months. And average 3% interest, compounded semiannually when held to maturity. Also, all *maturing* E Bonds automatically *go on earning*—at the new rate—for 10 more years. Today, start investing in Series E Bonds through the Payroll Savings Plan; you can sign up to save as little as \$2.00 a payday if you wish.

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OR FUZZING

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When nets increase your catch and—at the same time—cut down your handling cost since they're lighter in weight and easier to handle—then *you can't afford NOT to use them!* That's why more and more fishermen are using *ONLY* nets made of genuine Nylock Nylon Netting. How about you?

For further information, get in touch with one of the following manufacturers who make nets of BONDED NYLOCK NYLON Twine:

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EDERER, INC., Unity and Elizabeth Sts., Philadelphia, Pa.

PAULS FISH NET CO., 357 W. Ohio St., Chicago, Ill.

ADAMS NET & TWINE CO., 701 N. 2nd St., St. Louis, Mo.

THE FISH NET & TWINE CO., 310 Bergen Ave., Jersey City, N. J.

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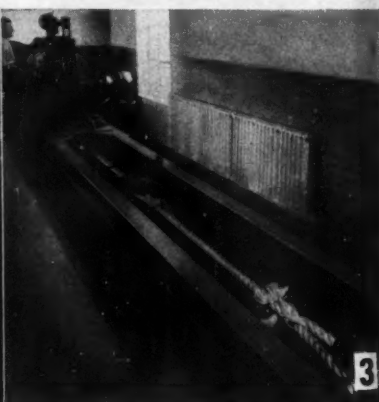
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This machine was specially designed for testing rope durability. A new piece of manila rope is attached and a switch thrown. The rope begins to move back and forth over a sheave, while under tension.



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Oyster and shrimp boats at Grand Isle, La., located on Barataria Bay, where tests were made to determine effect of seismographic operations on oysters.

Effects of Underwater Oil Exploration on Oysters

Fred W. Sieling* Shows That Seismographic Operations Are Not Harmful When Conducted in Accordance with Louisiana Law

TWO experiments were conducted during 1949-1950 to investigate the effects of seismic exploration for oil on oysters in the Barataria Bay, La. region. This work was initiated because claims were made by commercial oystermen that (a) the explosive charges used in this work killed oysters outright; (b) the gas which bubbles up from the shot holes is lethal to oysters; and (c) the bottom is softened or shifted by the explosions, thus causing the oysters to be buried and subsequently die. The experiments, using normal operating procedure for seismic exploration, were carried out to provide answers to these questions.

In the marshlands along the Gulf coast large deposits of oil have been found under the bayous and marsh. To locate these deposits without the drilling of unnecessary holes involving large expenditures of money and time, the system of seismographic exploration is used.

As this system is used in the shallow water and marsh along the Gulf of Mexico, the charges of explosive are placed in pipes which are in holes drilled into the bottom. These holes are drilled or jetted into the bottom by powerful pumps forcing water through a nozzle set into the bottom mud. As the hole goes deeper extra lengths of pipe are screwed on and the drilling continues to the desired depth. These pipes are of light steel and may extend into the bottom for over a hundred feet.

The explosive used, usually Nitramon, is packed in one-pound cans which are equipped with screw threads at each end. By means of these threads the cans are put together in long sticks and electrical detonators are attached to the upper end and they are lowered into the pipes to the desired depth. The charge is set off when the seismographic recording machines are in the proper positions.

Several charges may be set off in the same hole, the deepest charge always being first. The visual results of these explosions are small geysers of mud and water blown up to a height of 50 to 100' from the top of the pipe, which is usually several feet above the water level. The sensation to a person standing in a boat nearby is that of a sharp slap on the bottom of the feet. After the explosion the top section of the pipe which is above ground is unscrewed and removed, water and mud filling the hole.

Handling of Oysters Varied

It was decided to plan two separate experiments to be conducted in the Barataria Bay region, and to vary the handling and holding of the experimental animals

slightly. The oysters in the first experiment were placed in trays and then put in racks which kept them slightly above the bottom. In the second experiment the oysters were placed on trays and the trays put directly on the bottom.

In choosing the locations for the two series of explosions, four main considerations were taken into account. These were (a) to stay away from commercial oyster operations as far as possible; (b) to stay in water which does not have a salinity of less than five parts per thousand; (c) to stay out of waters which are normally inhabited by conchs; and (d) to select areas where the bottom was not too soft to support oysters.

After consulting salinity and temperature records and considering the general conditions of the bottom and protection from heavy wave action, two areas were selected. These were in Bay Batiste and Bay de Chene, two sections about ten miles apart. After the areas were selected three lines of chemical investigation were initiated. Samples of bottom mud were collected before any charges were fired, then collected again after the shots, and again at regular intervals after the charges were fired. These samples were analyzed to determine the amount of hydrocarbon present in the mud normally, and to detect any changes which may have occurred due to the effect of the explosions.

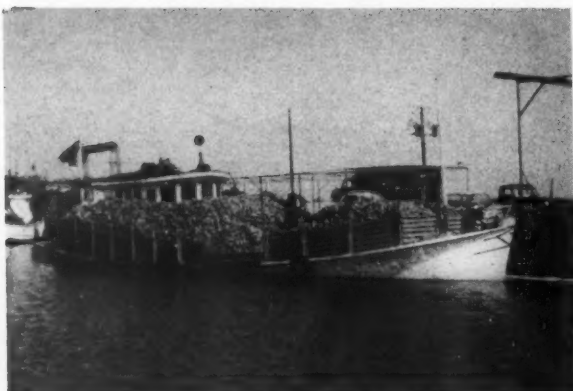
Also samples of the ebullient gases from the explosions were collected at regular intervals after the charges were fired, and these were analyzed to detect any noxious gases which might pollute the water. Water samples were taken before and immediately after the explosions and analyzed for pH, salinity, oxygen and hydrogen sulphide. Samples also were taken and checked for these same factors at regular intervals after the shots were fired to determine any changes which might have occurred due to the experiments.

Shot Points Form Diamond

After the areas for the experiments were selected, the patterns for the shot points were laid out and the positions for the experimental animals were determined. The shot points formed a diamond with the points 1000' apart and one shot point in the middle. This distance simulated the worst operating conditions possible under the law as when two lines of seismographic explosions cross at right angles. These distances were surveyed so as to be accurate and the locations for the experimental animals were carefully measured from the center shot point.

The oysters were placed at 20', 60', 130' and 250' from the point of explosion and in a staggered line so that

* Mr. Sieling, who is connected with the Maryland Department of Research and Education, is in charge of a field laboratory at Snow Hill, Md.



The 65' "Oyster Queen" which hails from Empire, La. and is powered with a 165 hp. General Motors Diesel. Owned by Capt. John Taliancich and brothers Leopold and Bovo of Triumph, La. Used for harvesting cultivated oysters, it has a capacity of 1800 bushels. The boat is equipped with Columbian rope, Northill anchor, Columbian propeller and is lubricated with Essolube.

each group would receive the full force of the shot. The distances were selected after studying published reports of the distances at which damage was done to oysters. The law of Louisiana states the minimum distance from a shot point to a natural oyster reef shall be 250'.

In each experimental area, at a distance of 40' from the shot point, a section of 18 x 18 was marked off and 10 bushels of rough-culled oysters were planted on the bottom. This also was done at control stations which were located 750' from the nearest shot point. At these control stations oysters also were put in trays, which were placed on a rack in Experiment 1 and put on the bottom in Experiment 2. At two other locations control facilities were established—one in a low salinity area, namely Bay Chene Fleur, and the other in a high salinity area in the lower part of Barataria Bay at a location known as Station 51.

Two explosive charges were used in each shot hole, one of 50 lbs. Nitramon and the other of 20 lbs., and these were exploded at depths of 50' and 30' respectively. These charges were selected because 50 lbs. is the maximum charge allowed in Louisiana waters, and 20 lbs. is a typical operating charge. The depths at which they were exploded were those set by law in Louisiana, and standard operating procedure was followed. The foregoing procedure simulates the worst operating conditions for the survival of oysters in the vicinity.

Two weeks before the shots were made in the first experiment, trays of culled healthy oysters were placed



Capt. John Taliancich, left, of Triumph, La., who operates the "Oyster Queen"; and Mathew Zibilich of New Orleans, who owns the 50' oyster boat "Salone".

on the racks erected in the experimental area. These oysters already had been under observation for several weeks to be sure that no mortality would ensue from handling. At the same time control trays were placed on the racks at the two control stations. These trays were in place several weeks before the explosions so that they would be acclimated to local conditions before they were exposed to the experimental conditions.

All trays were covered on the inside with 1/4" ratwire to protect the oysters from being damaged in handling and also to prevent depredations by conchs and large crabs which can cause considerable damage to unprotected oysters. Each tray contained 175 oysters. The day before the explosions all the trays were examined; dead oysters were removed, and the trays were replaced in position. The same procedure was followed in both experiments.

The first series of explosions was made at Bay de Chene on August 23, 1949, and the second series was made on August 31, 1949, at Bay Batiste. In each experiment the explosions were set off at intervals of approximately 25 minutes. The general procedure was to drill the hole from the drilling barge, using the method already described, and then move the barge to the next location. Then the barge carrying the shooting equipment and the explosive would move in and load the first charge into the pipe and fire it, and as quickly as was safe load the second charge in the pipe and fire that. The two pieces of equipment then would move around to the other four shot holes and fire the charges at those holes in the same manner.

Next the drilling barge would go back to the shot points and pull up the top piece of pipe or more sections where practical. This last was done so that no pipe would be left protruding above the bottom to menace boats or to damage fishermen's nets. This sequence is normal operating procedure for seismographic crews in the area.

Oysters Examined after Shots

Biologists went to the shot point as soon as the shot was made and examined the water for the presence of dead or stunned animals around the pipe. All trays of oysters were examined as soon as the shots were made for the detection of gaping oysters.

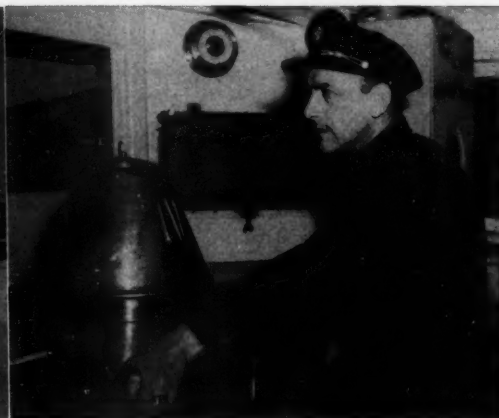
As soon as possible after the day of the explosions in each experiment, five trays of oysters were taken from each control area and placed one at each measured distance from the shot. At the same time one tray was removed from each position in the experimental area and taken to the control areas. The first part of this was to check any mortality caused by the handling prior to the explosions and by chemicals released in the water by the explosion. The second part was to determine if the explosions harmed the oysters; that is, these oysters were removed from the experimental area and kept at a location which was not exposed to the experimental conditions; and mortality was subsequently checked at regular intervals.

Some oysters were left in the regular positions at the time of the explosions and subsequently examined at regular intervals to note the long-time effect of any products which may have been released by the shots. All trays were checked at regular intervals for a period of eight months after the explosions (or until as happened in some cases they were removed by persons unknown). The oysters placed on the bottom in the area also were checked for possible sinking into the bottom due to effects of the explosions. Other trays of oysters from the original source were kept in the two control areas for the duration of the work and checked for mortality at regular intervals.

Evaluation of Experiments

The two experiments will be considered separately, as a slightly different technique was used in exposing the oysters to the explosions. The work in Bay de Chene will be referred to as Experiment 1 and the Bay Batiste work will be called Experiment 2. In Experiment 1 the animals

(Continued on page 36)



"Patrol No. 1", which together with three other smaller craft is responsible for enforcing commercial fishing regulations on Michigan waters of the Great Lakes. Skipped by Capt. Charles J. Allers, shown at right, the 69' boat usually comes off the lake about Dec. 1. Wind-whipped spray can cake the ship in a short time, as evidenced here. When the Winter season prohibits boat use, the four crews check ice fishing catches and inspect the stored, seasonal fishing gear.

Operations of a Great Lakes Patrol Boat

By Ted Bentz

MICHIGAN'S *Patrol No. 1* plays an important role in connection with the commercial fishing industry on the Great Lakes. With Capt. Charles J. Allers at the helm, the vessel travels as many miles annually in its fisheries law enforcement work as does the ordinary ocean-going steamship moving back and forth across a vast sea.

Every year since the craft first was commissioned by the Conservation Department at Bay City in 1929, *Patrol No. 1* has ranged over thousands of square miles of water to carry on its battle against fisheries law violators in Lakes Superior, Michigan, Huron and northwestern Lake Erie.

Patrol No. 1, after 24 years of service, is still the flagship of Michigan's Navy, with an outstanding record. The vessel has been operated continuously over one of the largest "beats" ever covered by any other law enforcement unit in the State's jurisdictional waters.

Every year the vessel has been instrumental in carrying out fish planting operations, when needed, and also has done other work in conjunction with conservation and wise utilization of the Great Lakes fisheries. In the Summer of 1951, *Patrol No. 1*, working out of Munising and Marquette on Lake Superior, performed a unique experiment in lake trout planting. The operation marked the first time that lake trout had been transported from below the Straits of Mackinac for planting in Lake Superior.

In this particular instance, the spawn was furnished the year before by Lake Superior commercial fishermen, and was taken to the Charlevoix, Mich. hatchery. Some of the eggs were supplied by Ray Adair, Chum Steinhoff and Lawrence O'Boyle, Munising commercial fishermen. The planted fish were unmarked. Before 1951 fingerlings reared in hatcheries at Marquette and Thompson were used for Lake Superior placement.

Boat Carries Crew of Four

The vessel's four crew members are not "old salts"; in fact, they take pride in being fresh-water sailors. The skipper, nearly 59 years old, is a veteran of 25 years' service with the Department, and has a paternal interest in his craft, having assisted in its design. When overhaul work is needed, Michigan's patrol boats put in at Marinette Marine Corp. shipyards, where two of the De-

partment's 42' patrol boats were constructed within the last four years.

Two of the members of the crew—Erwin Belfy, first mate, and Emil Pischner, chief engineer and cook, were indoctrinated in seafaring as cabin boys aboard fish tugs. Belfy, 61, has been aboard *Patrol No. 1* since 1937, and Pischner, 44, has been on the craft for 22 years. All three of the veteran sailors including Capt. Allers, have at one time or another lived on Beaver Island, a body of land which lies in northern Lake Michigan.

A fourth member of the crew, Jim Thunick, 27, is a seaman. A native of Cheboygan, which is just a few hours run from Beaver Island, he's called a "furriner" by the other members of the crew. All are commissioned conservation officers, and Capt. Allers is also a federal officer.

Patrol No. 1 is the largest craft of its kind engaged in patrol duty on the Great Lakes. Michigan operates three other patrol vessels, which are bolstered in their work by two craft from Wisconsin and a Canadian fleet.

Patrol No. 1 is the only craft in which the crew resides from fitting out time in April until the middle of December. The 54-ton vessel has three staterooms, a galley, and its bow compartment is equipped with special gill-net lifting apparatus. The boat is powered with a 200 hp. Diesel that drives her through lake waters at a speed of 10 mph.

Locating of Illegal Nets

On patrol, the vessel's objective is to seize illegal nets, and arrest, if possible, the owners that have set them. On occasion illegal nets of the gill-net type are set with buoys marking their position. The officers, however, often are forced to resort to use of grapnels to drag areas of lake bottom where violators are most likely to set unmarked nets out of season or nets with unlawful size mesh.

To find a few miles of gill or submarine netting in what is a vast expanse of water may appear like an impossible task. Nevertheless *Patrol No. 1* annually confiscates many miles of illegal netting. Fish move to certain regions and concentrate there during different seasons, and Capt. Allers knows where the fish are moving and is able to predict to some extent where illegal netting will occur.

But *Patrol No. 1*, like other patrol vessels operating on the Great Lakes, is more than just a patrol boat. On various occasions the craft aids commercial fishermen and other boat operators who are in difficulties due to breakdowns during stormy weather.



J. Parker Conrad, left, of Conrad Industries, Morgan City, La., and Oscar Friede of St. Louis, Mo., owner of the new 73' shrimp trawler "Florence Friede", shown at right sliding down the Conrad ways.

Deluxe Shrimpers Built at Morgan City

"Pat & David" of Aransas Pass, and "Florence Friede" of Tampa, Completed by Louisiana Yard

THE 27th of June was a busy day at the boatyard of Conrad Industries in Morgan City, La., when the new 73' x 20' x 7.5' deluxe model shrimp trawler *Florence Friede* went down the ways and the 70' deluxe shrimp trawler *Pat & David* had her trial run. At the same time the 65' standard model shrimp trawler *Corpus Lady* was being equipped at the yard's outfitting dock, while another 70' deluxe trawler was being planked in the building shed for July launching.

The *Florence Friede* is owned by Oscar Friede, a plumbing contractor in St. Louis, Mo., who became fascinated by the shrimp business on a trip to the South. His new boat will be skippered by Capt. Robert Weigem of Fort Myers, Fla., and will operate from Tampa, fishing on Campeche bank and off the coast of Honduras. Nothing has been spared in making the trawler up-to-date, efficient and comfortable, and she is considered one of the best ever built.

The *Corpus Lady* is owned by William T. Reese of the Reese Ice Company at Corpus Christi, Texas, and is powered with a 6-110 General Motors Diesel with 4.4:1 reduction gear. Reese also owns the 65' *Wild Goose*.

The 70' deluxe trawler, which was to be launched by

Conrad last month, is owned by C. O. Roberts of Aransas Pass, Texas. She is equipped with a D337, 170 hp. Caterpillar Diesel with 4.4:1 Snow-Nabstedt reduction gear. Roberts has ordered another trawler from Conrad for delivery next April.

"Florence Friede" Hold Completely Cemented

A new development in fish hold construction on the *Florence Friede* is the use of concrete on the under-side of the deck and on the pen separations, which is applied over metal laths. The hold floor, ceilings and bulkheads have two inches of concrete, and under the deck and in the bulkheads there is 3" thick Dow Styrofoam insulation. Having the fish hold completely cemented makes it more sanitary and easier to clean. The ice capacity of the hold is 40 tons.

The vessel's deckhouse is extra large, being 29' long and 10'4" wide, and has insulation overhead. In line with the new trend in deckhouse arrangement, the commodious quarters for four men are located in the after section of the house, which provides better ventilation. The 12' galley, located between the wheelhouse section and quarters, has tile flooring, Monel sink and electric refrigerator.

The *Florence Friede* is powered by a D337 Caterpillar 170 hp. Diesel with 4.4:1 Snow-Nabstedt reduction gear, swinging a 4-blade, 50 x 44 Avondale bronze propeller on a 3" Tobin bronze shaft, with 4" Goodrich Cutless rubber stern bearing. There is a 1600-watt, 32-volt Onan gasoline generating set and two sets of 32-volt Southland batteries. Goulds 2" pumps are operated off the Onan set as well as the main engine.

Other equipment includes Hathaway hoist, Ritchie compass, RCA 100-watt radiotelephone, Bendix depth recorder and One-Mile-Ray searchlight. The vessel has a large fuel capacity of 6600 gallons, and uses Gulf fuel and lubricating oils.

"Pat & David" Has Successful Trial

The *Pat & David*, which has a beam of 19'6" and draft of 7'6", was built for Oscar Galjour and Herbert Picou of Aransas Pass, Texas, and is skippered by Capt. E. J. Sawyer. She is the fifth shrimp trawler built for Galjour by Conrad, and another 70-footer has been ordered by him for delivery next February. Galjour is a charter member of the Texas Fishermen's Cooperative, and his other Conrad-built boats, all 65' in length, are the *Ruth K.*



The new 65' shrimp trawler "Corpus Lady", owned by William T. Reese of Corpus Christi, being outfitted at Conrad Industries.

Buddy Boy, Hilda G., and the Carole Ann, owned in partnership with Picou.

Like other Conrad trawlers, the Pat & David has good hull lines and ample working space both on deck and below. She gave fine performance during her trial run on the Atchafayala River, making a speed of 12 mph.

The trawler is powered with a D17000, 150 hp. Caterpillar Diesel with Twin Disc 3:1 reduction gear. The engine swings a 3-blade, 44 x 36 Michigan propeller on 3" Tobin bronze shaft with Goodrich Cutless bearing.

The boat is equipped with a Stroudsburg Model 515½T, 3-drum, metallized hoist, which winds 125 fathoms of 7/16 Wickwire trawling cable for the main net and 100 fathoms of 3/8" cable for the try net.

The bunk room is located in the after section of the deckhouse, with a double bunk aft and a single one forward, both placed athwartships. A door on either side provides good circulation. The boat has tank capacity of 6,000 gallons of fuel oil and 1,000 gals. for fresh water. The fuel tanks are form fitting, made of 3/16" plate. A shower bath with Fairbanks-Morse water system is located forward of the engine room, and the galley, aft of the wheelhouse, is equipped with Butane gas range. Two 25-gallon gas cylinders are carried on deck. Fiberglass insulation is used overhead and in the bulkheads of the hold.

The electrical system comprises a set of HR-19, 32-volt Surrette batteries and 2500-watt, 32-volt Onan Diesel generating set. Navigating equipment includes Portable Light Co. One-Mile-Ray searchlight, 8" Ritchie compass, Bendix DR-7 depth recorder, General Electric telephone and 22" mahogany steering wheel with quadrant.

The boat is rigged with New Bedford cordage, carries two Model 50R, 125-lb. Northill anchors, is fitted with Fairbanks-Morse Model 5½M, 1½" dewatering pump, and has Pettit paint on the topsides and interior.

Construction Specifications of Deluxe Trawler

The Conrad Industries yard, which is owned by J. Parker Conrad, is one of the largest builders of shrimp trawlers. Conrad took over the former Klonaris boatyard five years ago and since that time has turned out 45 vessels. The firm has complete facilities for designing, building and outfitting, including a machine and welding shop in which steel masts and tanks are fabricated.

There is space to build six trawlers under cover, and the yard generally has at least four under construction at one time. An average of better than one boat per month now is being turned out by the yard, and approximately three months are required from keel laying to outfitting.

Conrad shrimp trawlers are built to basically standardized specifications, with any necessary variations arranged to suit the requirements of the owner. The designs, which were developed by the yard, consist of "standard" model trawlers in 50, 60, 65 and 70-foot lengths; and "deluxe" model trawlers in 65 and 70-foot lengths.

The deluxe model Conrad trawler has a one-piece, 12 x 12 long-leaf pine keel with copper between the keel and false shoe; 12 x 20 long-leaf pine shaft log, 8 x 12 white oak bow stem interlocked with keel, and 8 x 12 pine keelson. The ribs are 2¼ x 4" steam-bent white oak on 12" centers; cross timbers are 4 x 8, bolted at each rib;



The new 70' shrimp trawler "Pat & David", built by Conrad Industries, Morgan City, La. for Oscar Gajjour and Herbert Picou of Aransas Pass, Texas. Below: Mate J. V. Smith, left, and Captain E. J. Sawyer of the new vessel.



each clamp comprises three pieces, 2 that are 3 x 6 and one that is 2 x 8, nailed and bolted to every rib; and deck beams are 4 x 8 long-leaf pine. The outside planking is 2" mahogany with countersunk nails, plugged and sanded; decking is 2 x 4 pine; the stern is made with 2" pine doubled and bolted; the inside of the hull is ceiled with 2" pine; flooring is 2" pine; and the engine foundation is 10 x 10 long-leaf pine. The bulkhead forward of the engine room is made of 2" and 1" lumber, while the bulkheads fore and aft of the hold are built up of 2" of lumber, felt paper, 2 x 4 studs, 4" insulation, paper and 1" lumber.

The deluxe trawler has 10" steel mast and 6" steel boom, both metallized. Twenty-five feet of 3" galvanized pipe are used for the try net davit and try net outrigger, and 16 feet of 4" extra heavy pipe for the main outrigger boom. There is a metallized outrigger for the anchor and 600' of 1¼" anchor rope is provided. The reinforced, welded rudder is made with a 42 x 60 steel plate, ½" thick, and the 10' rudder shaft is of 2-7/16" steel.

Below left: Surrette batteries and Onan Diesel generating set on shelf forward of the engine room, with expansion tank for keel cooler overhead, aboard the "Pat & David"; center: the vessel on her trial run; right: after deck view of trawler, showing her Stroudsburg hoist.

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Sardine Industry of Maine Packs 100 Millionth Case

The 100 millionth case of sardines packed in Maine since the beginning of the sardine canning industry at Eastport in 1873 was presented to Governor Burton M. Cross July 24 by leading representatives of Maine's sardine fishermen, can-makers and canners as the industry's 80th anniversary was celebrated. The presentation of the specially-labeled and wrapped "milestone case," which took place at an industry-wide luncheon at Bangor, dramatized the growth of Maine's sardine canning business to its present \$20,000,000-a-year level.

Presenting the 100 millionth case of sardines to Governor Cross were Moses B. Pike, president, Maine Sardine Packers Association; S. D. Arms, vice-president, Atlantic Division, American Can Co.; and Louis I. Cates of the Maine Sea and Shore Fisheries Department, representing Commissioner Stanley R. Tupper.

In speaking for the commercial fishermen, Commissioner Tupper pointed out that more than 1,200 people are engaged in sardine fishing. Their catch last year brought them over \$1,750,000, he said.

"Fishing is a traditional occupation in Maine," he told the group, "and it is a continuing source of revenue for thousands of people, not only those who go down to the sea in the more than 350 boats used in sardine fishing, but also in many related businesses."

Approximately 10 billion cans of sardines have been packed in Maine in the past 80 years, according to John Gault, Maine representative of American Can Co. Explaining that sardine canning is one of Maine's oldest and most important industries, Gault said: "Sardine fishing was a standard occupation for the Indians when Leif Ericson and his Norsemen first touched the American coastline about 1,000 A.D. But it was not until the canning process was introduced that the fish could be preserved other than by drying, smoking and salting."

"The first Maine experiments in sardine canning were conducted in 1865 by George Burnham, of the Burnham & Morrill Co. of Portland, who had studied packing methods in Nantes, France. Burnham opened a pilot plant in Eastport, but the project was discontinued because of technical difficulties." Gault reports that during this period experiments also were being conducted in New Jersey, where several sardine canneries were in operation near Port Monmouth.

"Attracted by the huge schools of sardines that frequented the Eastport area," Gault said, "Henry Sellman and Julius Wolff in the 1870's tried packing the fish in oil. They are credited with being Maine's first successful sar-



Hundred millionth case of sardines being presented to Governor Burton M. Cross of Maine at ceremonial luncheon at Bangor, Me. Left to right: Moses B. Pike, president, Maine Sardine Packers Association; Governor Cross; S. D. Arms, American Can Co.; Louis Cates, Maine Department of Sea & Shore Fisheries.

dine canners. Maine soon outdistanced its New Jersey competitors. In 1879, five canneries were operating in the Eastport area, and by 1881 there were 30 Maine companies packing sardines in cans."

The familiar, rectangular sardine can—a quarter-pound container—has been used since the earliest days, Gault said. An improved can, however, is now being used in many canneries, utilizing a larger key to open the container. Known as the "Norwegian-type opening," this development by American Can Co. replaces the older "punch-and-roll" device, permitting easier extraction of the can's contents.

In describing the growth of Maine's sardine canning industry, Gault said that in 1875 the State's pack totalled 60,000 quarter-pound cans, of which 50,000 were packed in oil, 5,000 in spices and 5,000 in mustard sauce. Maine now packs about 300,000,000 cans of sardines a year, most of them canned in oil and mustard, he said.

Sixty-nine small companies were engaged in sardine canning in 1898, according to Gault. "About this time the cycle changed, with syndicates absorbing the smaller firms. Two large companies emerged during this period, one of which was headed by Julius Wolff, the pioneer sardine canner. It was only a short time, however, before competition again increased the number of canneries. Today there are 48 sardine plants in Maine."

Sardines have continued to be present from the Eastport-Lubec area west to Portland down through the years. From April 15 to December 1 of each year, fishermen ply the waters in search of the fish. Five counties on the seacoast are principally engaged in catching and packing sardines. They are Washington, Cumberland, Hancock, Knox and Sagadahoc. The area east of Penobscot Bay produces about two-thirds of the annual pack.

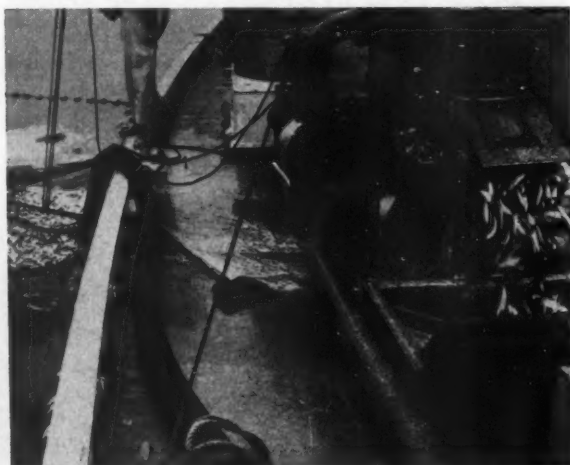
Advertising Program Underway

An extensive nationwide advertising and merchandising campaign featuring consumer magazines, radio spots, Sunday newspaper supplements and trade papers has been launched by the Maine Sardine Industry.

Executive Secretary Richard E. Reed reports that the promotional efforts are the largest and most comprehensive of any yet undertaken by the sardine packers, and will operate on a year round basis.

Financing is through a 25¢ a case State tax, imposed by the Legislature in 1951, at the industry's request. The annual budget runs from \$500,000 to \$800,000 a year and 27 packers operating 44 plants are participating.

Reed said that the advertising would be supported by numerous merchandising activities and other devices designed to create consumer demand. The campaign is designed to cover all of the nation's key sardine markets and the advertising theme is built around "More Protein per Penny in Sardines from Maine".



A typical operation aboard a Maine sardine carrier, where herring are pumped from the net through a B. F. Goodrich rubber suction hose.

Scottish Shipyard Launches Large Quick-Freeze Trawler

The launching of the 280' quick-freeze trawler *Fairtry* from the Aberdeen, Scotland yard of John Lewis & Sons Ltd., marks a further stage in the policy of processing at sea. The 2,500-gross-ton *Fairtry* is a development based on the *Fairfree*, a converted naval ship, which was operated experimentally for some years to determine the technical problems and the economics of processing immediately after catching.

Reported to have the characteristics of an ocean-going tug, a trawler and a U. S. Pacific Coast tuna clipper, the design of the *Fairtry* was altered considerably on the original of the *Fairfree*, and even during the building process there were repeated modifications and adjustments, all aimed at the development of the ideal factory trawler.

The new factoryship differs from a conventional trawler in a number of respects: (1) the engine (an opposed-piston, two-cycle type, direct-coupled to the propeller) and the auxiliary generating equipment are situated amidships; (2) trawls over the stern, the net being hauled up through a stern chute similar to that found in a whale factoryship; (3) the net is emptied on the deck and the fish pass through the hatches in the deck to pounds in 'tween decks, where the processing commences; and (4) there is a navigating bridge at the after end (over the top of the stern chute). With the exception of the chute at the stern, the vessel is a graceful, flush-deck craft, with a marked line of sheer, a raking soft-nosed stem, and a cruiser-spoon stern.

The basic idea behind the *Fairtry* is to utilize all that the ship catches. The edible portions of the fish are cleaned, filleted, deep-frozen, and packaged ready for distribution ashore; and the waste, offal, and livers are manufactured into by-products. Every cubic foot within the ship has been utilized.

After being drawn up the rear ramp to the trawl deck, the fish pass into a compartment with facilities for washing, filleting, skinning and heading, by machinery. The catch then goes to the quick-freezing plant, after which the frozen fish is packed and stored in holds.

The refrigerating machinery is so arranged that it will quick-freeze approximately 30 tons of fish per day and maintain a temperature of -5°F . in the holds. It is stated that the holds have a capacity for 600 metric tons of frozen fillets.

Offal is manufactured into fish meal, and livers processed for oil aboard the ship, which carries storage tanks for this work. The fish meal plant is rated to take 12 tons of offal per day, and there is storage capacity for 100 tons of dried meal directly underneath the deck on which the filleting machine is fitted. A standard set of four liver boilers will operate with tankage to take about 50 tons of liver oil and, in addition, there will be capacity for the residue remaining after taking out the oil and other by-products.

The *Fairtry* has a moulded breadth of 44'. She will accommodate 82, of whom about 60 are factoryship workers. The vessel can carry enough fuel (in double-bottom and cross-bunker tanks) to remain at sea for 80 days.

The main engine on the *Fairtry* is rated 1,900 hp. and is coupled to a four-bladed, right-hand propeller weighing about $3\frac{3}{4}$ tons. When proceeding to and from the fishing grounds, it is expected that the ship will have a speed of about 12 knots. She will trawl at approximately 5 knots.

The new quick-freeze vessel has created very considerable interest in Scotland, in view of the repeated advocacy of technicians for processing at sea. It is claimed that only by a policy of large-scale immediate handling is it possible to bring the catch home at peak quality and in a condition suitable for most economic disposal. The *Fairfree* demonstrated that this theory was practical. The *Fairtry* is carrying the experimental stage into the operational stage.



The 57' dragger "Two Brothers", owned by Edward Kacprzyński of Bridgeport, Conn., and powered with a 120 hp. Fairbanks-Morse Diesel which swings 44 x 30 Columbian propeller. Other equipment includes American Tiger Brand wire rope, RCA radiotelephone and direction finder and Linen Thread Co. Gold Medal nets.

Soft-Shell Clam Fishery Shows Rapid Growth in Maryland

The soft-shell clam in Maryland is fast developing into a promising new Chesapeake Bay fishery, according to the State Department of Research and Education. Traditionally this clam is a product chiefly of New England's tidal flats, where it is dug by hand at low tide. In Chesapeake Bay the normal range of the tides is little more than a foot, and bottoms where the soft-shell clam (*maninose*) is found seldom ebb dry. Until recently very little commercial exploitation of the soft-shell clam had been attempted in Maryland.

An Easton waterman in 1950 developed and patented a hydraulic dredge which harvests clams efficiently at depths up to 8'. The minimum depth of operation is limited only by the draft of the boat on which the rig is carried. The dredge consists essentially of an endless chain-link conveyor belt at the lower end of which is hinged a sled-like structure with an adjustable blade, and a hydraulic system which directs numerous small jets of water backward toward the blade conveyor. The dredge is swung alongside the boat from booms.

As the boat moves forward slowly, the jets of water loosen the bottom ahead of the dredge blade. Clams, shells, and debris are picked up by the blade and carried upward on the conveyor belt. At the upper end of the conveyor a crewman picks out the marketable clams, and the remainder of the catch falls overboard astern.

Some 40 boats equipped with hydraulic dredges are now operating in Eastern Shore waters, chiefly in Eastern Bay, the Chester River, and the Miles River. Thus far no measures have been taken to regulate the exploitation of what is proving to be a very valuable seafood resource. Clams are being taken in large numbers in every month of the year, and concern is felt in some quarters for the future of the industry unless sound management policies are established and enforced.

A study recently was initiated at the Chesapeake Biological Laboratory of the soft-shell clam in Maryland waters, for the purpose of obtaining basic information to be supplied to the Commission of Tidewater Fisheries. More recently, a resolution passed the General Assembly asking that such a study be carried through to completion. It is hoped that through judicious utilization of the new industry it may not only reach a high peak of production, but that sustained yields may be obtained.



Shrimp Association of the Americas officers. Left to right: J. R. Clegg, Brownsville, Texas, treasurer; Carlton Crawford, Palacios, Texas, retiring president; Pedro Pinson, Mexico, new president; Hector Ferreira, Mexico, secretary; Harry Sahlman, Fernandina Beach, Fla., vice-president. N. F. Jackson, Rockport, Texas, also elected a vice-president, does not appear in the picture.

Southeastern Shrimp Producers Join International Group

The Shrimp Section of the Southeastern Fisheries Association officially joined the Shrimp Association of the Americas at the third annual convention of the S.A.O.T.A., held in Mexico City, July 23 and 24. Pedro Pinson of Mazatlan, Sinola, Mexico, former vice-president, was elected president of the Shrimp Association. Harry Sahlman of Fernandina Beach, Fla., and N. F. Jackson of Rockport, Tex., were made vice-presidents; J. R. Clegg of Brownsville, Texas, was re-elected treasurer and Hector Ferreira, of Guaymas, Sonora, Mexico, was re-elected secretary.

Mr. Sahlman, president of Southeastern Fisheries Association, and official spokesman for the group, stated that within sixty days the necessary collection machinery would be set up to make his group a regular dues paying member.

The new Board of Directors includes six members of the Southeastern Fisheries Association in Florida: John Salvador, St. Augustine; Maitland Adams, Key West; John Ferguson and Carl Abbott, Ft. Myers; Booty Singleton, Tampa; A. J. Robida, Jacksonville. Texas directors are Tilman Falgout and Joe Grasso of Galveston; Morgan Daniel, Port Lavaca; Oliver Clark, Port Isabel; J. R. Clegg and Virgil Versaggi, Brownsville. The Mexican industry is represented by 12 members on the Board of Directors.

Committee Chairmen appointed by President Pinson were Virgil Versaggi, Advertising and Publicity; W. L. Hardee, Membership; Carlton Crawford, Quality Control & Research; Hector Ferreira, Commodity Exchange; Manuel Sanchez, International; Harry Sahlman, Conservation; and Robert Grandy, Marketing.

Outgoing President Carlton Crawford gave a brief, general resume of the past year's activities of S.A.O.T.A., and appealed to all present to become more active in sponsoring the Association work in the future.

Dr. C. P. Idyll, University of Miami; Dr. E. A. Fieger, Louisiana State University; Larry Strasburger, New Orleans; and Karl Envoldsen, Cleveland, gave reports on research and quality control; Mr. Pinson and Murray Wheeler explained the advertising and publicity program; and Mr. Versaggi reported on activities of the membership committee, which culminated in having the Florida producers join the International group.

Gen. Sanchez Taboada, Mexican Navy Secretary, addressed the meeting, stating that his department was willing to cooperate in every manner to further the purposes of the bilateral association. Gen. Taboada pointed out that Mexico was a sovereign nation and as such had every right to expect that its laws governing fishing and territorial waters should be respected.

Manuel Sanchez, vice-president of the Brownsville Shrimp Exchange and chairman of the Association's International Committee, reviewed the success of his committee in disputes which have arisen during the past year. In his report, Mr. Sanchez announced that American

shrimp fishermen have asked Mexico to establish two "refuge areas" in territorial waters along its coast where foreign vessels can take shelter from storms. For this favor, American boatmen are willing to recognize Mexico's fishing rights in a ten-mile strip paralleling the Mexican coastline.

Mr. Sanchez said that the proposed treaty by-passes the question of how far Mexico's jurisdiction over territorial water extends. Mexico claims nine miles but the United States, generally, recognizes only the three mile limit set up by international law. According to Mr. Sanchez, the treaty draft pledges the shrimp association to recognize Mexican fishing rights over the ten-mile zone.

If Mexico agrees to provide refuge areas, these will be located in the Campeche and Tampico localities and may be used by U. S. fishing boats without danger of detention by Mexican gunboats. Mexican fishermen would be given the same rights and duties when fishing off the U. S. coast as the U. S. boats would have near Mexican shores.

No Relationship Found Between Age Of Oysters and Quality of Spawn

One of the most common questions which, in the past, has been asked of biologists by people engaged in the cultivation and conservation of oysters and clams was at what age these mollusks produce the best spawn. Until recently no answer could be given to this question because there were no reliable methods by means of which a critical series of experiments with oyster or clam eggs could be carried through. However, during recent years such methods were perfected at the Milford, Conn. Fish & Wildlife Service laboratory, and scientists now are able to provide the answer.

Last Spring at the laboratory, three groups of oysters of different ages and sizes were conditioned for spawning, induced to spawn, their larvae grown and the rates of survival and growth of the latter ascertained. It was estimated that the members of the oldest group were between 30 and 40 years old, some of them measuring over 9" in length and more than 4" in width. The middle group consisted of oysters of marketable size ranging in age between five and seven years, and in the youngest group were small oysters of the 1951 set.

The experiments, which were conducted and repeated several times by Dr. Victor L. Loosanoff, laboratory director, and Messrs. Harry C. Davis and Paul E. Chanley, led to the following conclusions:

1. There was no significant difference between the oysters of different age-groups in respect to the time needed to develop ripe gonads, nor was much difference observed in the time needed to induce spawning in oysters of different groups. As a matter of fact, the oysters of the oldest group often responded to spawning stimuli more willingly than the others.

2. There was no significant difference in the percent of eggs fertilized. As a rule, all groups gave near 100 percent fertilization.

3. The percentage of development of fertilized eggs to straight hinge larval stage among the three groups

Rhode Island Firms Plant Shells on Oyster Beds

About 200,000 bushels of clam and oyster shells were expected to be shipped out of Warren before the end of July, according to Byron Blount of Blount Seafood Corp. Blount said most of the shells were to be planted off the Connecticut coast.

The shells are laid down on oyster beds to provide surfaces to which young oysters can anchor after the spawning season. When the small oysters are old enough to be seeded, they are transferred to growing beds to mature.

Blount disclosed that this year's figures include 125,000 bushels of clam shells and 75,000 bushels of oyster shells. The shells are from the Warren Oyster Co. and B. J. Rooks & Son, Inc., as well as from the Blount firm.

Mr. Blount revealed that he spotted natural oyster beds in Narragansett Bay last Summer, and said this may be an indication that the water in the area is becoming free of pollution. Blount said the natural sets were the first he has seen in the Bay in more than 35 years.

Clam Size Law to Be Enforced

Edward C. Hayes, Jr., chief of the State Fish and Game Division, has warned dealers that, from now on, wardens will arrest them if they are found selling or transporting undersized clams. To his knowledge, Hayes said, all of the small clams used at Rhode Island clambakes have come from New Jersey, which has no minimum size limit. But Rhode Island has a minimum size—1½ inches in the longest diameter.

The law, enacted last year, not only prohibits the taking of small clams, but also the buying, selling, offering or exposing for sale, or their transportation or possession. Thus, even if the thumbnail clams are from New Jersey, they are illegal in Rhode Island. Hayes said he realized that clams are scarce, and declared that his Division sponsored the law as a conservation measure to attempt to build up a greater supply.

showed no consistent variations that could be ascribed to the size or age of the oysters.

4. The scientists found no consistent difference in the size of the early straight hinge larvae of the three age-groups.

5. No significant difference in the rate of survival of larvae of the oysters of the different groups was observed.

Of biological importance was the observation that the sexes among the oldest oysters were about evenly divided. This is contrary to the conception established in some quarters that in such old age-groups females should decidedly predominate. The researchers also noticed that many of the largest oysters, while kept in the laboratory to be conditioned for spawning, formed good new shell growth, thus indicating that even at that age and size the oysters lost no ability to grow.

Similar studies conducted on the round, or hard-shell clam (quahog) also have shown that there is no significant difference in viability of the spawn produced by clams of different sizes and ages. Frequently, differences between individuals of the same size group were as great as differences between individuals of different groups. Larvae obtained from eggs of clams of all sizes tried were successfully carried to setting stage.

On the basis of their experiments, scientists at the laboratory have concluded that since there was no significant difference in the quality of spawn produced by individuals of different ages, adult oysters and clams of all age groups may be safely used as spawn producers. Nevertheless, as the largest and oldest oysters and clams have proven that they are fit to exist under the conditions where they have lived for so long, and since large mollusks, as a rule, produce more spawn than smaller ones, they should be especially wanted on spawning beds.



Commercial quahaug fishermen Charles Caverly, left, and Raymond Jovin, both of Warren, R. I. Their boats are powered with 25 hp. Johnson outboard motors.

To Co-operate in Striped Bass Study

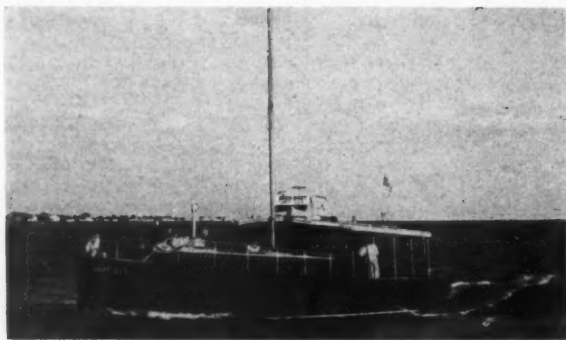
The Rhode Island Division of Fish and Game is going to co-operate in a Federal-State striped bass research program being sponsored by the Atlantic States Marine Fisheries Commission. Officials of the Commission have announced that Dr. Edward C. Raney of Cornell University, who joined the U. S. Fish and Wildlife Service temporarily to co-ordinate the work, has completed visits to all nine States having an interest in striped bass. In addition to Rhode Island, other States expressing a willingness to help in the study are Massachusetts, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia and North Carolina.

A wide variety of research projects is contemplated, including studies of spawning and spawning grounds, surveys of larval and juvenile fish, study of migration by tagging and other means, analysis of racial composition of the stocks, inventories of the local sport fisheries, and miscellaneous biological investigations, including research on the viability of the eggs of large (over limit) striped bass. Rhode Island will work particularly on tagging. The State already has supplied Dr. Raney with 35 to 40 small bass of the 10 to 12-inch size.

Electric Fences May Help Protect Clam Beds from Predators

Fish & Wildlife Service research workers, under the direction of John B. Glud, chief of clam investigations, have started preliminary studies to determine the feasibility of electric barriers to keep the green crab away from soft clams. The green crab is one of the major predators of the soft clam in New England waters. While the research work is still in the laboratory stage, it has been found that:

1. Green crabs can be repelled by an electric field in sea water.
2. About half are repelled by voltage gradient between wires of 0.5 volts per inch; 80-100% are repelled by 0.8 volts per inch, regardless of salinity.
3. Current drain at these voltages is dependent on salinity. Reduction of salinity from 28‰ to 14.5‰ reduced current by half.
4. In moderately saline water (28‰), power consumption of 1,000' of fence would be 3120 watts to repel 80-100% of crabs, if field results are similar to results in laboratory.
5. Position of electrodes and pulsation of current affect efficiency of barrier. Pulsations at 3 per second reduced effectiveness of barrier, but higher frequencies might be effective.



The "Capt. Guy", 50' x 14' x 4' party boat owned by Capt. Gaylord D. Davis of Babylon, N. Y., who has been sailing fishing parties for over 40 years. Her equipment includes 140 hp. Chrysler gasoline engine, 30 x 24 Columbian propeller, New Bedford cordage, and 25-watt Ray Jefferson radiotelephone. She is finished with International paint.

Long Island Boat Abandoned After Running Aground

The 51-ft. trawler *Two Sisters* out of Orowoc Creek, Islip, went aground last month about 300 yards west of the old Coast Guard station off Bellport. She was deemed unseaworthy after the mishap by her owner, Capt. Edward Conrad of Lindenhurst, and will not be set afloat again by him. Capt. Conrad said the vessel was drifting and ran aground when the wind shifted.

The Coast Guard abandoned operations on the grounded vessel after working two days with an amphibian truck, a 36-ft. motor lifeboat and an 83-ft. ship. The work was hindered by a rainstorm accompanied by strong southeast winds which pushed the vessel further up on the land and swung it parallel to the shore.

Several Boats Change Hands

J. C. Van Essendelft of West Sayville has sold his dragger *Col. Lindbergh* to North Carolinians, and the craft will be used in southern waters. She was built by Sam Newey in Brookhaven during Fire Island's sea scallop bonanza of the 1920's.

Bill Murdock's *Wilbur* now is being fished out of Shinnecock by her new owner, Howard King of East Marion. Al Woolley of Bradley Beach, N. J., has purchased the pound boat *L. I.* from Sunrise Fish Co. of Islip.

Weakfish More Plentiful in Peconic Bay

The weakfish supply in Peconic Bay has shown marked improvement, with weakfish surveyors reporting catching 1953 class fish. An abundance of small weakfish also has been noted in Long Island Sound.

Talbot Heads Birds Eye Fisheries Planning

John W. Talbot has been named to the new position of planning manager for Birds Eye fisheries operations, according to an announcement by the Birds Eye Division of General Foods, New York City. His responsibilities will be in the areas of distribution, production, marketing, new products development and the Birds Eye trawler fleet. He joined General Foods in 1947 after 13 years with General Motors, and was most recently assistant to the controller of the Birds Eye Division.

Joseph N. Thompson

Joseph N. Thompson, 71, who was the president of three large oyster producing and distributing firms in the East, died last month at his home in New Rochelle. He was head of George Thompson & Son, New York City; South Ferry Oyster Co., Greenport; and B. J. Rooks & Son, Inc., Warren, R. I. Thompson was the last surviving founder of the Oyster Growers & Dealers Association of North America, which has its offices in Annapolis, Md.

New Bedford Landings Show Big Gain

Fish landings in New Bedford during the month of June totalled 9,477,350 lbs., with an approximate value of \$1,216,364, according to the U. S. Fish and Wildlife Service. The fish value was \$432,155, and the sea scallop catch was worth \$784,209.

The total poundage of fish for June of this year far exceeds the catch for the same period during the two previous years. In 1952, the June catch amounted to 7,127,400 lbs., and in 1951 production was 7,033,900 lbs.

The breakdown of the June, 1953 catch by species was as follows: 392,900 lbs. of large haddock, 918,000 lbs. of scrod, 178,800 lbs. of cod, 1,020,450 lbs. of blackback, 510,200 lbs. of dabs, 91,500 lbs. of fluke, 294,500 lbs. of grey sole, 103,300 lbs. of lemon sole, 805,600 lbs. of yellow-tail, 1,774,750 lbs. of sea scallops, 3,194,450 lbs. of trash fish and 192,900 lbs. of all others.

Coves Opened to Quahogging

Deacons and Jacks Coves, east of Sciticut Neck and north of the West Island causeway, were opened July 15 for the taking of quahogs only. The areas were closed and planted two years ago.

Reopening of the fishing grounds was recommended by Shellfish Constable Tracy W. Marks. He advised the limitation of "quahogs only" as a means of protecting young clams and oysters in the area.

"Mary J. Hayes" Changes to Scalloping

The *Mary J. Hayes*, owned by Capt. John G. Murley, has changed over to scalloping. The work was done at D. N. Kelley & Son, Fairhaven.

"Hope" Purchased by Ryan

Peter Ryan of New Bedford is the new owner and skipper of the 57' dragger *Hope*. The craft formerly was owned by John R. Hillier of New Bedford.

New Engines for Two Scallopers

Two New Bedford scallop draggers, the *Alpar* and *Sally and Eileen*, have had new engines installed by Hathaway Machinery Co., Fairhaven. The *Alpar*, owned by Capt. Nils Kjelsen, has a D375, 270 hp. Caterpillar Diesel with Snow-Nabstedt 3:1 reduction gear, sold by Perkins-Milton Co., Inc.

The *Sally and Eileen*, owned by Ben Feldman and Jerry Cornelius of New York City, and skippered by Capt. John Tangen, has been repowered with a WM1905 turbo-charged Wolverine Diesel, rated 350 hp. at 1200 rpm. The engine has Snow-Nabstedt 3:1 reduction gear, Ross heat exchanger, Westinghouse Tridyne controls and Leece-Neville air starting motor.



The 45' shrimp boat "Miss Armatha", owned by J. H. Morgan of Dorchester, Ga., and finished with Woolsey paint. She has 110 hp. General Motors Diesel which turns 34 x 30 Michigan propeller through 3:1 Snow-Nabstedt reduction gear; Willard batteries, Columbian cordage, Linen Thread Co. Gold Medal nets, Stroudsburg hoist and Rochester wire rope.

Great Lakes Trollers Are Making Good Trout Catches

Commercial lake trout trollers operating on Lake Superior are enjoying good catches. Much trolling activity has been evident around the Apostle Islands, Wisconsin, area and abounding Munising and Grand Marais, Michigan.

Improved commercial takes of whitefish from netting operations were reported. Set-hook line operators, generally, were getting fair takes of lake trout. But lake trout netting, generally, was ranging from poor to fair.

In the Green Bay area of Lake Michigan yellow perch catches were heavy. There was an unusually good sucker run in both Lakes Superior and Michigan this season. Ken Berg of the Escanaba Conservation Regional Office says walleyes are returning to Bays de Noc. In the Bay area and northern Lake Michigan, herring hauls were up. Carp takes in the Green Bay area have been good.

On Lake Michigan, generally, chub and whitefish yields are ranging from fair to better. In the southern area of Lake Michigan some walleyes are being taken, but no sizable hauls have been reported. Perch netting was reportedly fair to good in southern waters during the Summer season.

On Lake Huron commercial netting operations produced good takes of perch, fair whitefish hauls, but generally, fishing on the lake has been about fair.

From Lake Erie, commercial fishermen operating out of Monroe, Mich.; Toledo, Sandusky, and Ashtabula, Ohio; were reportedly getting fairly good yields of perch, pike, carp, and mixed fish in nets. At Erie, Pa., and Dunkirk, N. Y., fishermen have been making fair hauls of pike and whitefish. Sandusky Bay had a good run of catfish recently. Port Dover, Nanticoke, Port Maitland and Port Colborne, Ont., producers on Lake Erie, have been getting fair yields of pike and whitefish.

On Lake Ontario, generally, commercial fishing was heavy but catches, except for perch, herring and pike, were fairly light in the leading varieties. In the "rough fish" category, takes were, generally, about average.

Bissel Operating from Grand Haven

Former Beaver Island commercial fishermen Charles Bissel and Dick Martin are now fishing out of Grand Haven, Mich., on the fishing tug *Sunrise* for Mrs. Marie Wichick. The boat lay idle last year.

Brady Purchases Share in Fishery

Robert Brady, Grand Haven, Mich. producer, has bought half interest in the James Hatfield and James Plews fishery. Brady bought out Hatfield, and will be a partner with Plews. The company will operate the fishing tug *Sambo*, with gill nets exclusively.

Suggests Establishment of Smelt Plant

Robert Kovack, marketing specialist of the Fish & Wildlife Service, recently told commercial fishermen of Menominee shoreline bay and members of the Menominee Chamber of Commerce, Mich., that the supply of smelt and the demand for them are present, but that the fish are not being marketed properly to compete with organized fish markets.

There is a possibility, Kovack said, of establishing a combination canning, processing and dehydrating plant in the Menominee, Mich., area which could be a profitable investment for commercial fishermen.

Kovack suggested a plant along the shore between Menominee, Mich., and Escanaba, Mich., possibly at Cedar River, where it would be in the center of the heaviest smelt-producing area.

Kovack pointed out there are three possibilities for smelt: 1—human consumption; 2—mink food; 3—fish meal for poultry feed. A combination plant could be built, he said, that would take care of 20 tons of fish a day by preparing them for the frozen food (human) market, canning them (mink food), or dehydrating them (fish meal for poultry).



The 51' fishing tug "Peter A." docked near the Anderson Fish Company's house inside the Marquette, Mich. breakwater. The craft is owned and operated by the Anderson firm, which fishes both gill and pound nets. She was built by Kashie Boat Yard at Portage Entry, Mich., and is equipped with 75 hp. Kahlenberg Diesel, Raytheon depth recorder, 100-watt Onan light plant, Crossley compressed air net lifter, and Fish Net & Twine Co. nets. The capacity of the tug is 27 tons.

He suggested that a fisherman's cooperative be formed in conjunction with help from the Chamber of Commerce to investigate the feasibility of establishing a three-phase plant in the area that would include freezing units for packaging Grade A smelt, a steam plant for cooking canned mink food and which could also be used for bean canning in the Summer months, and a dehydration plant for fish meal.

No Longer Need Two Licenses in Illinois

Illinois lake front fishermen will no longer need two licenses to run trot lines with multiple hooks off the breakwaters and piers into Lake Michigan after Gov. William Stratton signs the new fish and game code adopted by the general assembly recently.

Heretofore it has been necessary to have a special license for any line with more than two hooks attached. Under the new code it will be lawful to use a line with as many as 50 hooks without obtaining a special permit.

The new code also grants commercial fishermen permission to use nets with the same size mesh employed in the past. The commercial producers sought and were granted a two-year extension of the old mesh regulations.

Huron Bay Fishermen Get Good Catches

On Huron Bay and Keweenaw Bay of Lake Superior, set-hook line fishermen and "bobbbers" were getting good catches of lake trout along the rocky shore area. This type of fishing is done with hook lines baited with bloat or chunk of sucker in 20 to 35 fathoms of water. Two fishermen operating in an open boat using only bobbing lines, came in with 46 good-sized lake trout for a day's catch.

Seek Restriction in Sandusky Bay

During a recent Ohio Senate committee hearing, legislation to close Sandusky Bay on Lake Erie to commercial fishing ran into rough opposition. Sponsors of the bill pleaded for reserving the bay and an area outside its mouth for hook-and-line anglers and to give fish a chance to enter the shallow water to spawn. Rep. Diley R. Turner, an author of the bill, claims that nets used by commercial fishermen in the bay drag bottom, moving stones and disturbing plant life.

The committee was told that present laws governing operation of commercial fishermen in the bay are useless because a temporary injunction granted in a case involving one of the bay fishing companies has stopped further enforcement of conservation laws.

Boston Landings for June Show Increase over May

A total of 14,321,700 lbs. of fresh fish valued at \$1,033,020 was landed at the Boston Fish Pier and sold over the New England Fish Exchange during June. This was an increase of 18% in volume and 17% in value over the May landings. Compared with June, 1952 landings of 16,893,800 lbs. worth \$1,089,246, the totals for this June are lower by 15% in volume and 5% in value.

Production for the six-month period, January through June, totalled 78,129,700 lbs. valued at \$5,879,543. This was a decrease of 15% in volume and 25% in value when compared to landings for the corresponding 1952 period.

The aggregate volume of haddock and scrod haddock for June, 1953 comprised 59% of the month's total landings. Activity of the offshore fleet was centered mainly around Georges Bank, with a few trips to the channel and the Nova Scotian Banks.

In June the inshore fleet concentrated on fishing for whiting, and total landings of this species were slightly higher than for June, 1952. The price for steak whiting remained at \$3.00 cwt. during the month.

There were three trips by purse seiners, with a total of 34,100 lbs. of mackerel. During June, 1952, there were no trips by mackerel seiners, as these boats did not operate in any great number last year until September and October.

Supplies of scrod haddock, haddock, whiting, and pollock were moderate, while supplies of most other species were light to moderate. Demand was generally moderate, with prices remaining fairly level. The market was fairly steady during June.

"Delaware" Tests New Type Brine for Freezing

A five-day cruise of the experimental freezer trawler *Delaware* was made July 23-28 for the purpose of preparing experimental lots of frozen fish and for further testing of the modified brine-freezing mechanism under operating conditions at sea. Fishing operations were carried out on the southeast part of Georges Bank.

On this cruise, all freezing was done in a mixed magnesium chloride and sodium chloride brine, permitting the use of a freezing temperature of about minus 5°F. This is about 10° lower than can be safely attained with the refrigeration equipment using a straight sodium chloride brine. A substantial decrease in freezing time for both scrod and large haddock was possible at this lower temperature.

Approximately 14,000 lbs. of scrod and large haddock were frozen in-the-round in this mixed brine. Half of the total were glazed in sea water and the remainder left unglazed, prior to storage at 0°F. in the vessel's hold. These fish will be placed in commercial cold storage to determine the effect of the mixed brine on storage characteristics of the fish. Small lots of several other varieties of fish also were frozen in this brine.

Hudon Distributing Nordberg Gasoline Engines

Nap. J. Hudon, 40 Fish Pier, Boston, Mass., has been appointed distributor of Nordberg gasoline marine engines on the entire New England coast, north of the Connecticut River.

William G. Hawkins of Falmouth, Mass., formerly a district representative for Nordberg Mfg. Co. gasoline engines, now is associated with the Hudon organization. He will serve as a sales and service representative in Eastern Connecticut, Rhode Island and Southern Massachusetts. Clarence Hartnett of Salem, Mass. will serve in the same capacity, covering Northern Massachusetts and New Hampshire.

Hudon has appointed Harbor Supply Oil Co., 39 Portland Pier, Portland, Me. as Nordberg gasoline marine engine dealer for the State of Maine. Capt. H. William Miller will be in charge of Nordberg sales and service at

Harbor Supply, who also are handling the Nordberg 4FS line of Diesel auxiliary units.

An ample stock of Nordberg engines and parts will be carried in both Boston and Portland.

Crowther Rejoins Atlantic Coast Fisheries

The Atlantic Coast Fisheries Co. of Boston has announced that its former associate, Harold E. Crowther, will rejoin the organization on August 17 as director of research and development.

For the last several years, Mr. Crowther has been chief of the Technological Section of the Fish and Wildlife Service. Crowther helped create Atlantic Coast Fisheries' present Nordic one-pound, one-piece fillet package, and also helped design the forming machine for making it.

Biloxi, Miss. Shipyard Has Two Shrimpers Under Construction

Covacevich Shipyard, on Biloxi's back bay, is constructing two 72' shrimp boats for the Wallace & Bradley Seafood Co. of Dallas, Tex. Both of the shrimpers will be powered by General Motors 275 hp. engines, and are expected to be ready for launching in September.

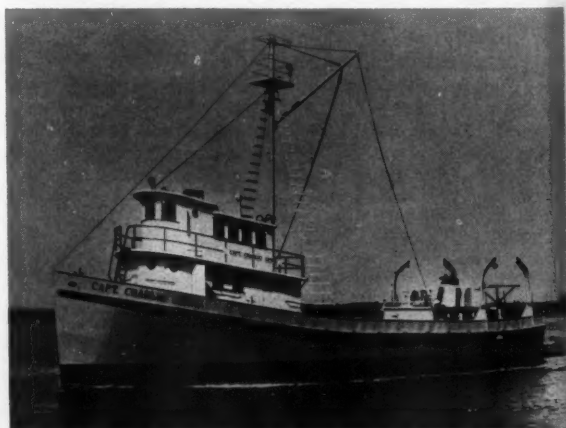
A 65' deep-sea party fishing boat was launched at the shipyard recently for Babe Strickland of Panama City, Fla. The craft is equipped with three 165 hp. engines.

A 72' shrimp for the Solomon Seafood Co. of Tampa, Fla., was completed in January and is now in operation.

"Oregon" on New Cruise

The Fish & Wildlife Service boat *Oregon* left Pascagoula the middle of July on a tuna exploratory fishing trip in the Central Gulf of Mexico. Purpose of the cruise is to find out whether stocks of tuna observed in the Gulf during the same season in 1951 and 1952 are present, and whether they can be taken in commercially valuable quantities using live bait.

The *Oregon* has found supplies of tuna in varying amounts in the Gulf during the past three years. U. S. Fish & Wildlife Service specialists are now trying to learn something of their habits. If the tuna can be found in commercial quantities, the information is expected to encourage establishment of a tuna canning industry on the Gulf coast.



The "Capt. Charlie Lewis", pogie boat owned by F. B. Walker & Sons, Pascagoula, Miss. Power for the craft is furnished by two 6-110 General Motors Diesels rated 205 hp. at 1600 rpm., and sold by Kennedy Marine Engine Co., Biloxi. The 52 x 44 Columbian propeller turns through 4.5:1 reduction gear.

Florida Survey Shows Sponges Are Free of Disease

Freedom from recurrence of the sponge disease noted in Florida's salt waters in 1939 was revealed in a survey of the commercial sponge beds made by the Marine Laboratory of the University of Miami. However, the survey indicated a scarcity of commercial size sponges. The sponge investigation covered 1,000 miles from Dry Tortugas to Panama City.

Studies were made of oceanographic conditions and fauna at 38 stations. Commercial sponges were found at 12 of these in water depths ranging from 12 to 60', but they were not found in depths in excess of 60'. The absence of small sponges in depths more than 60' indicates that the 1939 sponge mortality was almost complete, and that no source of seed sponges remained to repopulate the deep beds.

However, the report continues, assuming that there is no further mass mortality of the remaining sponges in water less than 60' in depth, a new growth of sponges for commercial exploitation should be available in from seven to eight years.

Claim Shrimp Shortage Not Caused by Blasting

There is a definite scarcity of shrimp this year in the Gulf of Mexico, but also wide differences of opinion as to what caused it. Fishermen maintain that dynamiting for oil is harmful to sea life, particularly shrimp, but the oil explorers take issue. And biologists of the Marine Laboratory of the University of Miami agree with the oil men.

Marine biologist C. P. Idyll blames the shortage on unusually bad weather and fluctuating abundance characteristics of marine animals. He agrees that there are fewer shrimp now than in the last three years, but said that he and other biologists are almost positive that the shortage is not the result of seismic exploration. Neither does he believe that overfishing of the shrimp beds is a factor.

Results of actual experiments show that sea life is rarely killed by explosions beyond 150 ft. and not in large numbers within that radius, according to Dr. F. G. Walton Smith, director of the laboratory. Shrimp are not killed as close as 50 ft. from an 800-lb. charge of dynamite, and there is evidence that fish are not driven away, he declared. Dr. Smith added that crabs are not killed outside 150 ft. from an explosion, and spiny lobsters survive 50 ft. away from a 40-lb. dynamite blast.

Large Shrimper Launched at Tampa

The 73-ft. *Helen Ray*, which was reported to be the largest shrimper ever built in Tampa, was launched at the Steamways Corp. yard on July 27. The vessel was christened by Mrs. Tom Hanlon, wife of the owner. Hanlon is head of the Hanlon Shrimp Co. at Tampa, which operates other vessels in the fisheries.

With a capacity of 6,000 gallons of Diesel fuel for her 150 hp. engine, the *Helen Ray* has a cruising range of five weeks and is equipped with the latest electronic devices, both for navigating and for detecting shrimp.

The crew of the vessel will consist of a captain and four crewmen, all of whose quarters will be topside. The craft has a capacity of 40 tons of ice for storing shrimp.

She was designed by W. F. Stow, Tampa naval architect who has been with the Steamways Corp. for 20 years. Her ribs are steam-bent oak brought from Tennessee, and planking is selected Douglas fir. The keel is made of a single timber 56 ft. long, 16" deep and 9½" wide.

Crawfishermen Protest New Ruling

Monroe County crawfishermen are planning a protest to State officials in an effort to gain relief from regulations making it illegal to take crawfish from Monroe waters with tails measuring less than 6". It is claimed that crawfish with the required size tails are extremely scarce in the Key West region. The reason for the 6" law is to end the practice among unethical fishermen of cut-



New 72' x 19.5' x 8' shrimp trawler "Carleen F." owned by Hollis M. Forrester of Jacksonville, Fla., who operates her out of Morgan City, La. The boat was built by Modern Trawlers, Inc., St. Augustine, Fla. and equipped by Jacksonville Yacht Storage Co. She has 6 cyl., 190 hp., 1200 rpm. Murphy Diesel with Snow-Nabstedt 3:1 reverse and reduction gear and Twin Disc power take off, 5-blade, 48 x 38 Federal propeller, 50-watt Apelco radio, Bendix DR-9 depth recorder, Metal Marine automatic pilot, Stroudsburg 515½-T hoist, One-Mile-Ray searchlight, and 5000 gals. fuel capacity.

ting the tails from undersized crawfish, thus making it impossible to arrest them.

During the last few days of the Legislature, a law was enacted which, after August 5, allows crawfish weighing one pound to be taken from Dade County waters. The 6" law, however, will remain in force in all other counties, including Monroe. Most of the Dade County fishermen set their traps in the sea off keys, and in affect, they will be carrying the one-pounders off to the Dade County markets, while the local fishermen will be prosecuted if they are found to be doing the same.

New Seafood Plants to Be Built at Tampa

A lease of property at Hooker's Point in Tampa to Shoreline Packing Corp. was approved by the County Port Authority recently, and B. D. Hice, president of the Corporation, announced that construction would start immediately on a modern seafood processing and freezing plant.

Plans call for a first unit building measuring 60 x 80 ft. Mr. Hice will pack shrimp for sale through Canadian stores. The proposed plant is expected to be completed about September 15, and will employ up to 50 workers.

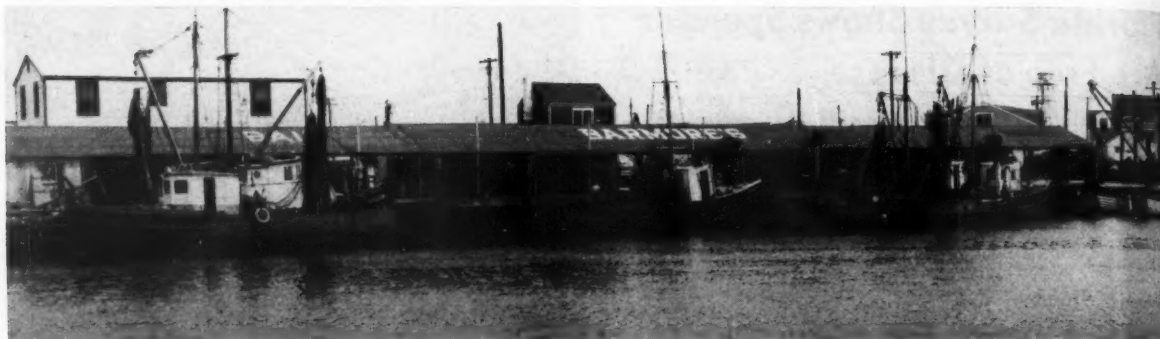
The Port Authority also approved the leasing of property facing on Basin Three near the front of Sparkman Channel to M. Martin Palakow who plans a seafood cold storage plant as part of Tampa Foods, Inc. Palakow is to erect a 10,000 square ft. building for the storing of frozen foods.

Apalachicola Bay Shrimping Banned

The State Board of Conservation has closed Apalachicola Bay to all shrimping until Sept. 15, or later if it takes that long for white shrimp in the Bay to reach marketable size. Conservation Supervisor Charles P. Bevis requested the ban, as a great increase in the population of immature white shrimp has been reported in the area.

Key West Crawfishermen Doing Well

Key West crawfishermen are enjoying one of the best seasons in recent years. Thousands of traps set in local waters are producing hundreds of crawfish with individual fishermen coming in with catches ranging up to 1500 lbs. per week. Prices are holding up to around 20¢ per pound.



Dock of Frank Barmore, Inc. at Point Pleasant, N. J. The firm is operated by Mrs. Frank Barmore with the assistance of Frank Barmore, Jr.

New Jersey Makes Netting Of Striped Bass Illegal

Governor Driscoll signed into New Jersey law on July 21 a bill making illegal the netting of striped bass and the use of gill haul seines and staked gill nets in the State's inland waters, except the Hudson River and Delaware Bay. The measure has no effect on ocean nets.

Although a 1948 New Jersey law prohibited the netting of striped bass, this measure's purpose was circumvented by a 1951 amendment permitting "shad" fishermen to keep accidentally-caught stripers found in their nets between February 1 and April 30. Sportsmen claim that the effect of the 1951 amendment was to legalize striped bass netting in New Jersey inland waters where thousands of bass were wintering, but in which there were virtually no shad.

It is said that some 500,000 lbs. of striped bass were netted out of the Great Bay-Mullica River and Barnegat Bay-Toms River waters during one season by fishermen operating under the "shad" loophole. The new law, which was enacted under strong pressure from sportsmen's groups, is expected to put an end to the striped bass netting by outlawing the nets as well as the netting.

"Victory" Burns and Sinks

The fishing dragger *Victory* caught fire and sank 75 miles east southeast of Cape May July 24. Capt. William F. Enos of Gloucester, Mass. and his three-man crew were rescued by the Atlantic City fishing dragger *Vagabond*, with Capt. H. B. Essington in command.

Clam and Oyster Bills Signed

Four bills on clamming and oystering in Delaware Bay, sponsored by Sen. A. J. Cafiero, were signed into law last month by Gov. Alfred E. Driscoll. One of the measures sets a "clam line" in the Bay, designating underwater lands which may be leased by the Shell Fisheries Council for cultivation of clams. Power boats are prohibited.

Another of the new laws prohibits taking oysters by other than hand tongs from Delaware Bay beds in West Creek and at the mouth of the Creek.

A third law provides penalties for violations of a regulation governing oyster and clam takes on State lands if not leased. The new law provides fines of from \$100 to \$300 for the first offense, and from \$300 to \$500 for each subsequent violation.

Still another new law provides that licensed oyster planters must agree to deliver 40% of the shells from oysters taken in the Bay, Maurice River Cove and Delaware River lands under tidal water to the Shell Fisheries Council.

Menhaden Major Item in Year's Catch

Total landings of fish and shellfish in New Jersey for 1952 amounted to 220,619,000 lbs. Menhaden, at 170,714,800 lbs., accounted for 77 percent of the yield.

Maryland Crab Catch Shows Increase

Both hard and soft shell crab landings have increased in quantity to the point where Crisfield packing houses are running full time picking crab meat. The supply of soft shell crabs is sufficient to take care of the expanding market, as Summer resorts get into full swing.

Faced with what seemed dismal prospects some weeks ago, when crabs of all kinds were scarce, the increase in the catch cannot be explained by the watermen. Crabs apparently come and go, and nobody knows a whole lot about where and when.

Should the present catch continue, August and September will be banner crab months, with supplies approaching those of last season, or possibly exceeding them.

Oyster Setting Under Way

J. B. Engle, Chief, Chesapeake Shellfish Investigations of the Fish & Wildlife Service, with headquarters at Annapolis, advises that setting has begun on the oyster seed areas in Eastern Bay. Results of examinations made on July 6 at one of four check stations indicated a set of 4 spat for every ten shells. There was no set at any of the other test locations.

G. Francis Beaven of the Solomons biological laboratory reported on July 22 that some setting has occurred at almost all stations in seed areas in various parts of the Bay and its tributaries.

Work on Seafood Laboratory Progressing

Crisfield's new seafood laboratory is scheduled to be completed by the first of the coming year. The laboratory, which will be operated by the University of Maryland, will be 60 ft. wide and 165 ft. long, and is of one-story construction.

The purpose of the laboratory is for the development of better packing and shipping methods for the seafood industry, as well as for work by the students at the University of Maryland. It is expected that the University will start operations at Crisfield just as soon as the building is ready for occupancy.

Oysters on Tea Tables Killed by Freshets

In the Fall of 1952, the Commission of Tidewater Fisheries planted about 1500 bushels of adult oysters on Tea Tables, which is an oyster bar located near the head of Chesapeake Bay. Fresh shells also were planted in the Spring of 1953 adjacent to the block of mature oysters.

The Spring of 1953 was characterized by excessive rainfall, and while the adults survived during the Winter, they apparently were unable to withstand the long exposure to fresh water. Mortalities mounted in adult oysters 3 inches or over. On the basis of recent examinations about 90% of the spawners over 3 inches have died, indicating that the planting of spawners was not a practical venture.

Virginia Oyster Production Totals 2,247,000 Bushels

Tax proceeds for the oyster season just ended were nearly \$45,000 on 2,247,463 bushels of the bivalves. This was the first year of enforcement of the 2¢ per bushel tax. The oyster season opened September 15 in the Potomac area and on October 1 elsewhere. Closing dates vary in different parts of the State, but no oysters are taken after June 1.

The fisheries law levying the tax stipulated that "the proceeds of the tax shall be expended by the Virginia Commission of Fisheries in a shell planting program so as to rehabilitate the oyster industry." There has been some misunderstanding about this since the appropriations bill of the last General Assembly, passed after the fisheries law, provided that the tax proceeds would go into the general fund.

J. H. Bradford, State Budget Director, explained that the appropriations bill supersedes the fisheries law, and that the tax proceeds will be put into the general fund. He added that the Commission of Fisheries receives more than \$400,000 in appropriations, while collections by the agency amount to less than \$200,000. Whether or not the \$45,000 in oyster tax money will be designated for the oyster program depends on the decision of the next General Assembly.

Menhaden Plant Damaged by Fire

The major portion of the menhaden processing plant of the McNeal Co., Inc. of Fair Port was destroyed by fire last month. The fire spread rapidly throughout the scrap shed and to other buildings and docks, burning two cinderblock structures and several frame buildings housing the boilers, hot air dryers, the scrap and oil processing plants, nets and net reels.

All four of the boats of the Company came in the day of the fire practically loaded. The fish were processed at the McNeal-Edwards Co. and Reedville Oil & Guano Co. plants. Arrangements have been made for the vessels to continue fishing. Two of the craft were to deliver their catches to the McNeal-Edwards Co., while the other two were to go north to fish for Consolidated Fisheries of Lewes, Del.

Tangier Crabbers on Strike

When the crab dealers of Tangier Island dropped the price on peeler crabs from four to three cents July 20th, 100 crabbers went on strike. The strikers called a meeting at which they organized and agreed not to sell crabs for less than four cents apiece. In addition, no one is to be



O. S. Wilson's 42' "Lelia May" of Deltaville, Va., which is used for haul seining and oystering. She is powered with a Chrysler engine with 2:1 reduction gear, and uses Linen Thread Co. Gold Medal netting.

allowed to work on the crabbing grounds until the crab dealers satisfy the crabbers' demands.

The strike was the first of its kind in the history of the Island. As of the latter part of July the dealers were shipping fewer boxes of crabs, and the crabbers themselves felt the pinch of no income. However, some of the strikers are not idle. They are catching as many as 100 lbs. of balloon fish a day, and are selling them to the Crisfield markets for 25¢ a pound.

Hampton Roads Area Landings

Landings in the Hampton Roads area continued light in July, totalling only 562,100 lbs., compared to 770,000 lbs. in the same month of last year. All but 42,800 lbs. of the catch came from pound nets and haul seines. Croaker, with 288,600 lbs., was the top variety, followed by sea trout (weakfish), with 123,700 lbs. The 49,400-pound spot yield was in third place.

Capt. Bunting Lost at Sea

Capt. J. O. "Dick" Bunting, 43, of Jeffs, part owner and master of the Hampton fishing dragger *P. K. Hunt*, was lost overboard from the craft early in July off Shelburne, N. S. The vessel has been ocean perch fishing out of Gloucester, Mass. this Summer.

Tri-State Commission Organized

The initial step toward a cooperative research program for the fisheries of Virginia, Maryland and North Carolina was taken at an organization meeting on July 16 at Old Point Comfort, Va., of a joint commission on conservation of migratory fin fish.

Composed of legislative committees from the three states, the commission adopted a resolution asking that the research bodies of the states, in cooperation with other research groups and the Fish and Wildlife Service, be directed to draft a concrete cooperative program for research into the cause of the decreases in quality and quantity of migratory fin fish in the waters of the area.

Virginia State Senator Edward L. Breeden of Norfolk was elected chairman of the commission. Two vice chairmen were named—State Sen. W. Mason Shehan of Easton, Md., and State Sen. J. F. Whitfield of Burgaw, N. C. The men are chairmen of the legislative committees, formed last year, in their respective states.

A subcommittee of the Joint Commission met at Beaufort, N. C. later in the month to discuss formulation of a program to be presented to the legislative committee the latter part of this month.

Biologists will investigate the fluctuations of fin fish in Chesapeake Bay and North Carolina Sound, particularly croaker, sea trout and shad, which are common to entire area.



The 36' trawler "Sea Spray", owned by Riley Hart of Wadmalaw Island, S. C. The craft is painted with Kirby copper paint, and her power plant is a 110 hp. Chrysler gasoline engine with 20 x 16 Michigan propeller. Other equipment includes Surrutte batteries, Columbian rope and Linen Thread Co. Gold Medal nets. Esso lubricating oil is used.

Texas Fish Commission Studying Shrimp

An experiment to determine the mortality rate of tagged and untagged shrimp is being made by the Texas Game & Fish Commission laboratory at Rockport. A definite number of tagged shrimp will be placed in a prescribed area with an identical number of untagged shrimp, and a close check will be kept to determine survival and mortality rate of both groups. Biologists are hopeful that these tests will show how long shrimp can withstand the extreme pressure of the harvesting practices used on the Texas coast during the past four years.

A second experiment under the immediate direction of biologist Howard Lee, is aimed toward gathering additional information on shrimp generally. Data will be obtained on where shrimp spawn, at what age they first spawn, whether they spawn more than once, how long they live, whether they migrate, and if so, how far they travel, how fast, and when.

Port Isabel Has First Fleet Blessing

Port Isabel's first Blessing of the Shrimp Fleet ceremonies were held on July 5, with the Rev. Fr. Lawrence J. Fanning, OMI, officiating. The blessing was followed by a boat parade, and four prizes were awarded for the best decorated shrimpers. Trawlers from both Brownsville and Port Isabel participated in the two-day celebration.

Shrimp Landings Down in July

Landings of shrimp at principal Gulf ports were some lower in July than during the previous month. Factors contributing to the decline were Fourth of July holidays, as well as several days vacation at Aransas Pass and Port Isabel during the Shrimp-O-Ree and Blessing of the Fleet ceremonies. Many trawlers from adjoining Gulf States returned to home fishing grounds in June, after operating in the West Gulf for a year or more, and unloading at Texas ports.

In the Port Isabel-Brownsville area 5,977 barrels of shrimp were processed at local plants. The Aransas Pass region had 3,871 barrels; Port Lavaca had 1,665 barrels and Galveston area reported 1,863 barrels.

Biologists to Establish "Nursery Grounds"

The propagation of redfish and trout through a program directed by biologists at the Rockport Marine Laboratory is being planned. The program calls for the planting of vegetation in certain areas to establish "nursery grounds" for the fish.

Biologist Cecil Reid said there were several conditions which could cause the diminishing areas of nursery grounds for these species. Besides a shortage of vegetation, drought conditions and increased industrial activities could be responsible, he said.

Ruppia, also known as widgeon grass, and Acetabularia, also known as mermaid's wine glass, will be planted in areas where nursery grounds were known to exist in previous years. These two grasses are used by trout for spawning as well as nursery grounds. The redfish spawns in the Gulf, but the young enter the vegetation areas before reaching one inch in length.

Capt. Sherman Has New Shrimper

Four Brothers Shipyard of Galveston launched the 65' shrimp trawler *May Sherman* recently for Capt. Kirk Sherman of Port Isabel. She is powered with a 150 hp. Murphy Diesel with Snow-Nabstedt reduction gear, sold by Houston Engine & Pump Co.

June Landings Show Decline

Landings of fishery products at Texas ports during June totalled 15,211,200 lbs., compared with 16,492,600 lbs. during June, 1952. The decrease was primarily due to reduced menhaden landings. Production of shrimp and of most other fishery products increased sharply.



The 65' "Marguerite" at Aransas Pass, Texas. Powered with a 165 hp. General Motors Diesel. Owned by T. L. Bishop and skippered by Capt. Jim Stone.

During the first ten months of the current fiscal year, there were 71,652,600 lbs. of fish and shellfish caught. This represented a decrease of 14% compared with the 10-month period ending with June, 1952.

Shrimp-O-Ree Held at Aransas Pass

Aransas Pass' Shrimp-O-Ree drew approximately 10,000 visitors into the city during the three-day event which began July 10. Activities were concluded on the 12th with the Blessing of the Fleet ceremonies in Conn Brown Harbor, when Rt. Rev. Msgr. Adolph Marx pronounced the blessing on more than 100 decorated trawlers which took part in the ceremony.

A street parade, fish dinner, and coronation dance were other features of the three-day entertainment. The visitors were guests of the Aransas Pass Chamber of Commerce and seafood industry at a free fish dinner at Newbury Park. Approximately 2,400 lbs. of red snapper and other salt-water fish were prepared for the dinner.

High Salinity Causing Loss of Fish

Several years of hot, dry Summers are having an undesirable effect on waters in Laguna Madre. Normally, the waters have a salt content of approximately 35 parts, which is higher than in the adjacent Gulf. Recent reports indicate that the salt content has doubled and that the lagoon is the amber color of weak coffee. This high salinity has had a very disastrous effect on fish life in the lagoon in the past, when millions of both large and small fish have died.

Regulations on Shell Dredging Tightened

The Texas Game & Fish Commission has tightened regulations on shell dredging operations. Dredging will not be permitted from any reef not submerged by a minimum of two feet of silt and mud.

The Commission also will cooperate with shell industry representatives in conducting a scientific study to determine the effect of such dredging operations on fish and oysters. The study will begin with Galveston and Trinity Bays. Gulf Coast fishermen have protested that dredging operations are harmful to fishing areas.

Protecting of Immature Shrimp Urged

The Shrimp Association of the Americas has urged its members to prevent waste of immature schools of shrimp. During the Spring and early Summer months there are many small shrimp along the Texas coast. Occasionally, some shrimp of commercial size are found among the immature schools, and in order to get the small percentage of commercial shrimp, at least 85 to 90 percent of the catch must be discarded. The Association feels that such waste is useless and impractical, and that it brings about a reduction in future production.

Maine Fisheries Department Opens Boothbay Harbor Branch

Commissioner of Sea and Shore Fisheries Stanley R. Tupper took part July 7 in opening ceremonies for a new branch office which his Department has established at the McKown Point Station in Boothbay Harbor. Fishermen of all types, including lobstermen, draggermen, seiners and the like, will be able to obtain fishing licenses at Boothbay Harbor. Also available to the fishermen will be research information collected by the Department's biologists at the McKown Point laboratories.

Commissioner Tupper says that he will shortly launch a drive to obtain more fish wardens for his Department. Tupper believes that the enforcement and conservation divisions of the Department have slipped in recent years, while the promotion and research sections have been fattened, perhaps too much.

Rockland Landings Heavy in June

A record amount of over 11 million lbs. of redfish, groundfish and herring was unloaded at Rockland during the month of June. The herring catches, landed at the Holmes, Green Island and North Lubec packing plants, totaled 7,500,200 lbs.

The Birdseye Division of General Foods reported receipts of 2,726,900 lbs. of redfish and 47,800 groundfish. The top vessels included the *Surge*, with Capt. Douglas Schwartz, which delivered 628,900 lbs. of redfish and 500 lbs. groundfish; and the *Breeze*, 586,600 lbs. of redfish.

Named to Supervise Sardine Inspection

Andrew E. Watson of Monmouth has been named as assistant chief of inspection for sardines by Commissioner of Agriculture Fred J. Nutter. This position was created by the 96th Legislature at the request of the sardine industry, to carry out an improved inspection program in the processing plants.

Watson will be assisted by a staff of approximately 45 deputy inspectors and several district supervisors. One man is assigned to each of the State's plants during the April 15 to December 1 packing season.

Kennebec River Clam Flats Reopened

Clam flats on the lower Kennebec River, closed since August, 1948 as a precaution against bacterial pollution, were reopened for digging the latter part of July. The Inspection Division of the Maine Agriculture Department recommended the move after extensive tests had indicated the productive clam area could be reopened with safety.

The area extends from Popham Beach and Gilbert Head at the mouth of the River to a line across the River half a mile south of Weasel Point in Phippsburg. The flats are in Phippsburg and Georgetown.

Testing Green Crabs as Bait for Tuna

The green crab, mortal enemy of the soft-shell clam, may prove to be of value as bait for catching tuna. Biologists at the U. S. Fish & Wildlife Service station at Boothbay Harbor recently shipped out a barrel of the crabs to be used for this purpose. The shellfish went aboard the *Marjorie Parker*, long-line trawler from Portland which has been chartered by the Service to determine whether tuna are present in New England waters in commercial quantities.

There is a more-than-abundant supply of the predatory green crabs available, and trapping them would be worth while if they should prove to have some commercial value. Large-scale trapping of the green crabs might reduce their population, thereby benefiting clammers. In their continuing search for a profitable use for the green crabs, Boothbay Harbor biologists also are testing their value as lobster trap bait.



Malcolm "Mike" Rice of Birch Harbor, Me., skipper of the 38' dragger "Three Sisters", relaxes and rests his sea legs. "Mike" Jr. is happy that it is vacation time and he can take a turn on the dragger.

Device for Collecting Clam Larvae

An automatic filtering device for collection and holding of clam larvae to setting has been built and tested at the Boothbay Harbor Fish & Wildlife Service station. The equipment is composed of a plywood tank holding 170 gallons of water. The tank is filled by the incoming tide through a check valve in the side. During the outgoing tide, water passes through a four square foot sand filter in a tray. The location of the overflow maintains 8" of water over the sand trap at low tide.

According to biologist John Glud, it now appears that this device may provide a practical means of collecting hard clam spat. The method, on a commercial scale, may be a way to collect sufficient spat for the growers' needs.

Stevens on Sardine Tax Committee

Ralph B. Stevens, Yarmouth sardine packer, recently was appointed to the Maine Sardine Tax Committee by Sea and Shore Fisheries Commissioner Stanley R. Tupper. Stevens will complete the unexpired term, ending in February, 1956, of Frank A. Pike of Lubec, who resigned because of illness.

Seafoods Festival Held at Rockland

Almost 40,000 visitors from nearly all of the United States and five foreign countries enjoyed Maine's ocean delicacies at the seventh annual Maine Seafoods Festival, held July 31-August 2 at Rockland. The guests were served lobster, steamed clams, fried ocean perch and all the fixings. This year's Sea Goddess was Miss Joan Williamson of Rockland, who was crowned by Sea & Shore Fisheries Commissioner Stanley R. Tupper. She was sponsored by the Rockland Lobster Dealers Association.

Sardine Pack Lags Behind Last Year

The pack of Maine sardines up to the first of August was only about one third of what it was last year at the same time. It is estimated that approximately 750,000 cases have been packed this year, compared with 2,000,000 cases for the same period of 1952. Continued failure of fish to show up in larger quantities caused the market to advance from \$6.50 to \$7.00 for keyless oils.

Part of the drop in production has been due to the fact that the factories have run over 200,000 cases into oval and tall cans because of the West Coast pilchard shortage. Another reason for the poor comparison of this year's output with the 1952 pack is the fact that there was a very heavy run in June a year ago. Many small fish have shown up all along the Maine coast, but most of them are in the brit class, which are too small to pack under Maine law.

Owner of Carol & Estelle delighted with **AQUA-CLEAR Feeder**

*"Pays for
itself
many times
over . . .
virtually no
maintenance
... cuts
lay-up time."*



"No Signs of Rust and Corrosion

SINCE WE HAVE INSTALLED THE AQUA-CLEAR Feeder"

**Here's what Morris Rosenberg has to say about his boat,
the Carol & Estelle, operating out of New Bedford, Mass.**

"Fresh water cooling systems with their extra pipes, expansion tanks, pumps and extra maintenance, are very expensive, both in original cost and operating expense later.

"The Aqua-Clear Feeder is inexpensive for the job it does and requires virtually no maintenance at all. This enables us to cut lay-up time which is very expensive.

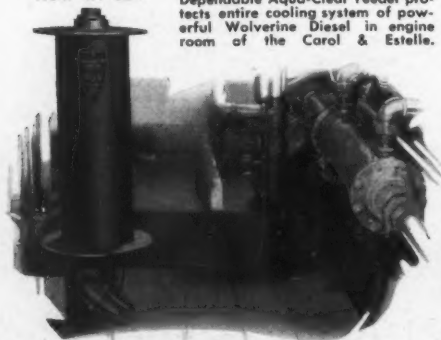
"Since installing Aqua-Clear we have seen no signs of rust building up inside the water passages, or any signs of corrosion anywhere and this is proof that the feeder is doing the job you say it will.

"We are delighted that we bought one as we are sure it will pay for itself many, many times over in savings to us."

Makes Old Engines Last Years Longer **Keeps New Ones from Ever Rusting**

Don't let destructive salt water eat away your cylinder heads, manifolds, water jackets and liners when you can have positive protection with the AQUA-CLEAR Feeder at such little cost, only \$30 to \$50 for engines up to 150 h.p. and larger sizes in proportion.

**OVER 15,000
NOW IN USE**



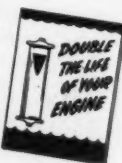
Dependable Aqua-Clear Feeder protects entire cooling system of powerful Wolverine Diesel in engine room of the Carol & Estelle.

Also Works Miracles in Processing Plants

Canners and packers are finding the AQUA-CLEAR Feeder to be the ideal solution to troublesome rust problems, along with other food processing plants - refrigeration plants, restaurants, laundries, factories, etc. Wherever there is rust in water lines, tanks, etc., the AQUA-CLEAR Feeder will supply complete protection.

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FREE!**

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money, get more
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Dealers: Write for Special Offers.

North Carolina Ends Night Shrimping Ban

The Commercial Fisheries Committee of the Conservation and Development Board recently changed the rules to allow shrimping 24 hours a day except on Sunday, and also formed a committee to work with the Marine Corps in an attempt to save valuable fishing grounds from becoming bombing targets.

For the past three seasons, the Board has by a special act made it possible for shrimpers to trawl at night and start in May in order that the fishermen can catch the brown spotted shrimp. Now the fishermen only will need to get permission to open the season early as the ban on night shrimping has been ended.

The step of allowing night shrimping was taken upon the advice of the Institute of Fisheries Research at the University of North Carolina. W. A. Ellison, Jr., director of the Institute, explained to the Committee what the night shrimping operation had meant to State fishermen, and also indicated that no conservation measures were involved.

A committee composed of Cecil O. Morris from the Conservation Board, Clyde Potter of Belhaven, Earl Holden of Vandemere, Clayton Fulcher, Jr. of Atlantic, and Mr. Ellison was named to consult with the Marine Corps on the bombing target problem. Messrs. Holden and Fulcher pointed out to the Board that the proposed bombing target areas cover excellent oyster grounds and shrimping bays, and would make impassable a long-used channel near the Point of Marsh. The committee will try to work out a compromise with the Marine Corps in order that the target areas may be obtained, while at the same time the fishing grounds continue to be protected.

New Chairman of the Conservation & Development Board's Commercial Fisheries Committee is Eric Rodgers. Other members of the Committee are Cecil O. Morris of Atlantic, Charles H. Jenkins of Ahoskie, Charles S. Allen of Durham and Henry Rankin of Fayetteville.

To Build Trawlers

The Morehead City Yacht Basin has launched a project for the mass production of shrimp trawlers, R. C. Kirchofer of Raleigh, president, announced recently. When the production line has been set up and is running at peak efficiency, the plant will turn out from four to six trawlers a month.

In order to set up the plant, the Yacht Basin has purchased land and obtained easements from the city for constructing a large shed-like building 250 ft. by 110 ft. wide. The building will be laid out so that

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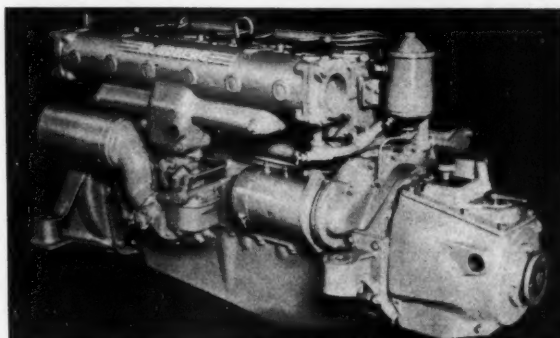
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NORDBERG "TARPON"—130 hp. at 3000 rpm. Six cylinders, 320 cu. in. displacement, 4" bore x 4 1/4" stroke.

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five to six trawlers will be in process of construction simultaneously.

At the present time, the firm is building a model trawler to test various aspects of the project. This trawler is a Hatteras-type vessel, 68 ft. long. The production plant will be equipped to turn out trawlers from 55 to 75 ft. in length.

Invents Crab Shucker

Everett O. Hiller of Hyannis, Mass. has invented a machine which makes it possible to extract the edible meat from the blue crab in less than one-third the time ordinarily consumed by the operation. His device was to be put into operation at Beaufort, N. C. on August 1.

Georgia Packer Believes Excessive Amount of Small Shrimp Taken

Sam Lewis of Brunswick, who is one of the State's larger operators in the packaged frozen seafood business, believes Georgia has been harvesting too great a crop of undeveloped or immature shrimp. He points out that the shrimp run from a 42 to 65 count, with the exception of the month of June, when the count drops to about 28.

Local shrimp boats seldom operate over two or three miles offshore, while Mexican shrimpers work from 11 to 40 miles out. Mr. Lewis has conducted some investigations of his own on the Georgia coast, and he reports taking grouper and snapper as far out as 70 miles. He had a catch of 2,000 lbs. for one day, with the fish weighing from 10 to 50 lbs. To operate safely at this greater distance, it is said that 60 to 70 ft. boats with heavy rigs would be needed.

One marine biologist recently disclosed that most of the Georgia shrimp are taken while in the act of migration. Shrimp like mud bottom, and Georgia waters have little of this to offer.

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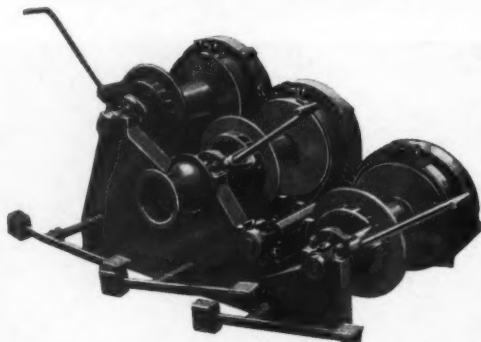
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Warren

Rhode Island

It's a STROUDSBURG HOIST on the new shrimper "Pat & David"

Built by Conrad Industries



A Model 515½T, 3-drum Stroudsburg Hoist is aboard the new 70 ft. deluxe shrimp trawler "Pat & David" of Aransas Pass, Texas.

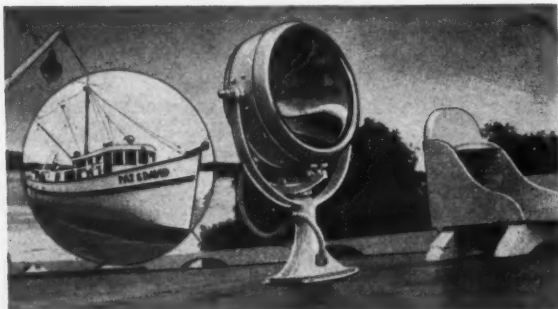
Successful shrimp fishermen everywhere know they can depend on Stroudsburg for a rugged hoist that stands up under hard, constant service.

Engineered for long life, Stroudsburg hoists are made in single, double and triple drum models.

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"The Fishermen's Choice is the Stroudsburg Hoist."



Conrad Industries recommend "RAY-LINE" SEARCHLIGHTS for the trawlers they build. You too can have the light you need—when you need it—if you specify "RAY-LINE".

Write Dept. No. 14 for New Catalog



Louisiana Oyster Association Elects Jurisich President

Joseph M. Jurisich of Popich & Jurisich, New Orleans, was elected President of the Louisiana Oyster Dealers & Growers Association, Inc. at its annual meeting held in New Orleans on August 2. Other officers elected include Glenn Martina, New Orleans, Vice President; James Kambur, J. Kambur Co., Inc., New Orleans, Secretary; Leopold Taliancich, Triumph, La., Treasurer; Baldo Pausina, New Orleans, Second Vice-President; Zeljko Franks, J. V. Franks & Sons, New Orleans, Assistant Secretary; Leon Cognevich, New Orleans, Assistant Treasurer.



Joseph M. Jurisich

Board members elected include Peter Vujnovich, New Orleans; August Pitre, Cut Off, La.; Bozo Zibilich, New Orleans; and Mack Rodrigue. Mrs. Edna D. Wrenn is Executive Secretary of the Association.

Mr. Martina described the extensive publicity work done by the Association during the past year in promoting Oyster Week and in educating the public on the fact that oysters are also good in months without the "R". Martina stated that Louisiana oystermen had gained considerable knowledge from oyster growers and dealers in other parts of the country as a result of the National Oyster Convention being held at New Orleans this year.

Mr. Jurisich declared that the Association had made considerable progress during its first year of organization. He explained that the group is united in a program which calls for advertising and promoting the sale of oysters, for studying legislation and new laws affecting the industry, for improving working conditions in the oyster industry, and in protecting the interests of fishermen.

L. D. Young, director of the Wild Life & Fisheries Department sent a message to the meeting in which he assured oyster fishermen that his department stood ready at all times to help them with their problems.

The group acted favorably on the suggestion of James N. McConnell, Louisiana Director of Oyster & Water Bottoms, that a committee of three be appointed to discuss mutual problems with a similar number of committee members from each of the following groups: Board of Conservation, Seismographic Board, Mineral and Water Board and oil companies. In accordance with the instructions of the meeting, the Board of Directors on the following night appointed Capt. Baldo Pausina, Leopold Taliancich, and Bozo Zibilich to serve on the committee, with provision that Robert U. Blum, the Association's attorney would sit in on their meetings.

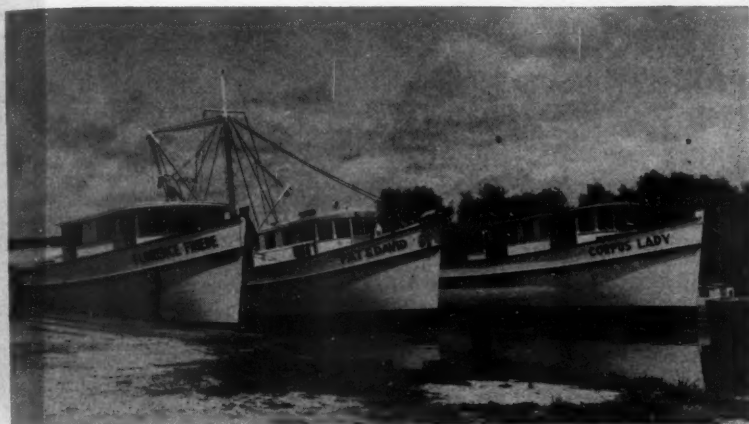
Hard Crab Production Doubles

Hard crabs handled in the Morgan City-Berwick-Patterson area practically doubled in quantity this year over last. From January through June some 779,500 lbs. of hard crabs were packed last year. The quantity handled in the area during the same months in 1953 was 1,411,800 lbs., according to the Fish & Wildlife Service.

Delcambre Fleet Blessing

The blessing of the shrimp fleet was the climax to the third annual Delcambre shrimp festival and fair celebration, a two-day event held recently. The colorful ceremony was conducted from the deck of the Baudoin-Landry owned fishing lugger *Joe Marie*, while a crowd

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Three New Shrimpers Being Outfitted at Conrad's

The 73 ft. deluxe model "Florence Friede" of Fort Myers, Florida, the 70' deluxe model "Pat & David" of Aransas Pass, Texas, and the 65' standard model "Corpus Lady" of Corpus Christi, Texas.

CONRAD is fully equipped to design, build and outfit wooden fishing boats of any size or type. Only carefully selected materials are used, and Conrad craftsmanship assures a seaworthy vessel, built for long life and low maintenance.

You can have complete confidence that Conrad will produce a quality vessel to meet your most exacting needs.

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Boat Builders for Fishermen

Morgan City, Louisiana

estimated at 5000 persons lined the banks of the Delcambre Canal.

The traditional parade of decorated boats up and down the Canal followed the blessing ceremony, with scores of craft of all sizes taking part.

Seed Oyster Reservation Opened

Hand-tonging for oysters in Sister Lake, the State seed oyster reservation in Terrebonne Parish, is to be permitted through the month of November, according to L. D. Young, Jr., director of the Louisiana Wild Life and Fisheries Commission.

Tonging will be allowed in daylight hours only, and each boat entering the body of water first must register at the wild life and fisheries camp. Boats leaving the Lake will be checked at the camp to ascertain the amount of oysters taken and from which area.

Oysters will be removed from the Lake by individuals for transplanting to their leased water bottoms. Tonging has not been permitted since 1950 in Sister Lake.

Capt. Davidson Has New Trawler

Capt. Clyde Davidson's new 60' shrimp *Cleo Florence* has been completed by Kyle Paul Scott of Houma. Capt. Davidson, who sold his former vessel the *Dragonet* to Earl Wiggins and Alvin Oncale, spent about three weeks in Houma supervising the completion of the boat. The *Cleo Florence's* shrimp catches will be delivered to the Morgan City plant of the Twin City Fishermen's Cooperative Assoc., Inc., of which Davidson is a member.

May Establish Menhaden Plant

A 61-acre tract of land on Wax Lake Outlet about 2,000 ft. from the Southern Pacific Railroad has been leased by the Shadyside Co., Ltd., to Jack T. Styron of Lake Charles. The lease grants Styron the right to operate a menhaden fish factory or such other factories or plants as he desires on the premises.

Commercial Fishermen Organize

About 200 Louisiana commercial fishermen met in Pineville last month to organize the Louisiana Commercial Freshwater Fishermen's Association. Irving D. Abbott of Pineville was elected president, with Wade Constance as vice-president and F. Jean Pharis, executive secretary and treasurer.

The officers and Elmo Deville, Marksville; S. M. Wilson, Big Island; and Thomas C. Hamplin, Jonesville, were elected incorporators.

Alabama Exports Skipjack

Skipjack—once in a class with the worm as being good only for bait—is now an important export item from this country to Hawaii. The Gulf of Mexico fish, which resembles a mackerel, long has been discarded by fishermen in the Mobile area.

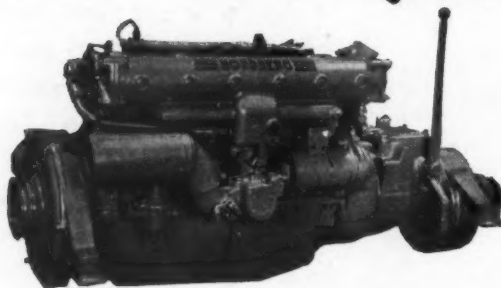
However, according to Victor A. Gonzales, president of the Star Fish and Oyster Co., Mobile, more than 250,000 lbs. of skipjack, or ladyfish, now are shipped through Mobile annually to Hawaii, Puerto Rico, Venezuela and Cuba.

Skipjack also are caught in Hawaiian waters, Gonzales said, but the United States exports them to Hawaii at certain times of the year when the supply there runs low. The fish are quick-frozen and stored at the Alabama State Docks cold storage plant until they are ready for shipment.

Canned Shrimp Pack Up

Canned shrimp output through July 18 was 843,000 cases, or 14% more than the pack of last year to the same date. The pack of small canned shrimp so far this season has been relatively large, with cannery able to ease prices because of the drop in raw shrimp costs. The cannery are favored by the fact that there have been a lot of small shrimp which freezers and the fresh market do not want.

It pays to SPECIFY NORDBERG Gasoline Marine Engines!



Here are a few of the particularly outstanding features of Nordberg Gasoline Marine Engines that add up to peak performance, maximum operating economy, and low maintenance:

- ☆ Counterbalanced, seven main bearing crankshaft — assures smooth vibrationless power—less load per bearing—long life and low maintenance.
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- ☆ Preheated fuel mixture, jet cooled exhaust valve seats prolong engine and valve life, improve fuel economy.
- ☆ More sources for power to drive extra on-board equipment than any other marine engine.
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G453

Effects of Oil Exploration

(Continued from page 16)

were put in trays and placed on racks above the bottom, and in Experiment 2 the animals were placed in trays directly on the bottom.

In Experiment 1 no dead or gaping oysters were found when examined immediately after the explosions. Observations were made on these, to count and remove dead oysters, at approximately two week intervals for four months, at which time most of the oysters were stolen from the racks. However, it is thought that the four months during which they were checked would have shown up any mortality due to the effect of the explosions. It was planned to keep the oysters under observation for at least eight months, and the trays which were held at Bay Chene Fleur and Station 51 were observed for 7½ months.

The percent survival after four months of those oysters exposed 20' from the shot was 83.7%; those exposed 60' from the shot, 86.7%; those exposed 130' from the shot, 85.3%; and those exposed 250' from the shot, 84.4%. The controls showed a survival of 76.0%. Those animals which were exposed to the explosions and then moved to the control areas showed no correlation in their survival rate and their distance from the shots. Also, the oysters which were moved from the control areas into the experimental area showed no correlation between their percent survival and their position in reference to the shot point.

High Salinity Results in Mortality

The only correlation found between the chemical and hydrographic data and the mortality data is that concerning salinity and temperature. It was found that the period of high mortality and the period of high salinity and temperature coincided, and the period of low mortality was the same as the period of low salinity and temperature. There was a great difference between the survival of the animals which were at the low salinity control area at Bay Chene Fleur and those at the high salinity control area at Station 51. The average percent survival of those oysters at Station 51 was 52.8%, and the average percent survival of the controls at Chene Fleur was 78.6%.

Those animals which were exposed to the explosions and then moved to the low salinity control area had an average survival rate of 86-90%, and those which were moved to a high salinity area had an average survival rate of 78-85%. This is not a great numerical difference, but it follows the general trend of the percent survival falling as the animals are exposed to waters of higher salinity.

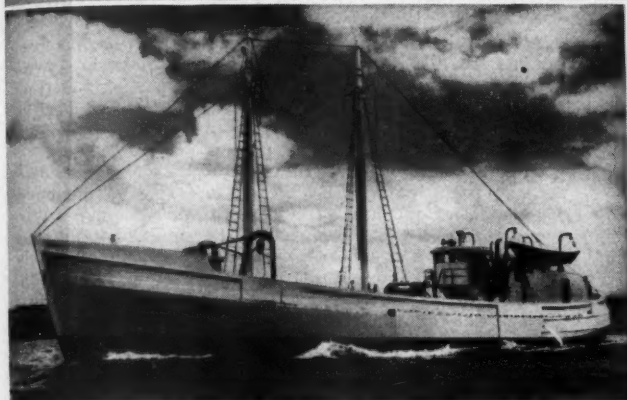
To sum up the data from Experiment 1, we could find no correlation between the distance of the oysters from the explosions and the survival rate, and the control rack showed the lowest survival. Neither could there be found any significant correlation between those oysters left in the experimental area and those animals moved into a control area away from any possible effect of gases arising from the shot holes. The only correlation was between mortality on one hand and salinity and temperature on the other.

The experimental animals in the second experiment remained in place for the total time planned; however the data are treated the same as in Experiment 1, that is, a cutoff is made after four months so that the data will be comparable. However, the observations were continued for the full 7½ months as originally planned for both experiments.

The percent survival of the oysters at 20' from the shot point was 82.3% at four months, and it was 75.7% at 7½ months. Those animals which were exposed to the shots at 60' had a percent survival at the end of four months of 82.4% and at 7½ months it was 78.5%. At 130' from the shot point the percent survival at four months was 86.8% and at 7½ months it was 78.7%. The percent survival of those exposed at 250' was 85.1% at

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The fishing trawler "Vilanova" was constructed by Captain Joaquin Gasper, and completely "Safety" equipped by our Boston Marine Agent, The Wharf Machine and Electric Company, and "DESECO" Diesel Engine Sales and Engineering Company.

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the end of four months, and at the end of 7½ months it was 73.5%.

The percent survival of the controls was 86.2% at four months, and at 7½ months it was 77.4%. There was no correlation between the distance at which the animals were exposed to the explosions and the survival rate shown by the oysters when moved to the control areas at Station 51 and at Bay Chene Fleur.

As in Experiment 1, the mortality data show no correlation with the chemical and physical data except that when the salinity and temperature were high the mortality was high and when the temperature and salinity dropped the percent of mortality also dropped. Animals which were exposed at any time to waters of higher salinity suffered a higher mortality rate than those which were never exposed to high salinity water.

Oysters which were in the experimental area during the explosions and were then moved to the low salinity area after the shots showed a survival percentage of 87.7% after four months, and those which were moved to a high salinity control area after the shots showed a survival of 76.0% after four months. After 7½ months this percent survival was 83.1% and 67.9% respectively for the two areas.

Those animals which were moved from the control areas to the experimental area after the explosions showed the same trend but it was not as pronounced, as the oysters from the low salinity area showed a survival after four months of 88.7% and after 7½ months of 78.6%; while those from the high salinity control area showed a survival after four months of 85.4% and a percentage of 76.9% after 7½ months.

It is interesting to note that those oysters which were exposed to the explosions and which stayed in the experimental area showed a rate of survival of 84.5% after four months and a rate of 76.6% after 7½ months, thus showing that there was no significant difference between oysters which were exposed to the explosions and those which were not exposed. There was no effect on the

oysters from the ebullient gases from the shot hole, as there was no significant difference in the survival rates of oysters left there and those oysters carried to the control areas.

Oysters Did not Sink into Bottom

These two experiments produced data which when used in connection with the chemical and physical observations made, and the personal observations of the author, make several conclusions obvious as to the effect of seismic exploration on oysters when carried out under the existing regulations of the State of Louisiana.

Among these is the effect of the explosions on the bottom. It can be said without any reservation that the oysters which were on the bottom near the shots showed no evidence of sinking which was different from that of oysters on the bottom in the control area. No silting of the bottom due to the shots was observed except for a distance on the average of about 3' from the shot hole. As the regulations do not permit seismic exploration on an oyster bed, this would not damage oysters. The report of turbidity measurements showed that less turbidity was caused by the explosions than by commonly encountered factors, such as wind.

The glycogen content of the experimental animals did not differ significantly from that of the control animals. In Experiment 1 the glycogen content of the experimental animals was slightly higher than that of the controls, and in Experiment 2 the glycogen content of the control animals was slightly higher than that of the experimental animals. In neither case was the difference enough to be considered significant.

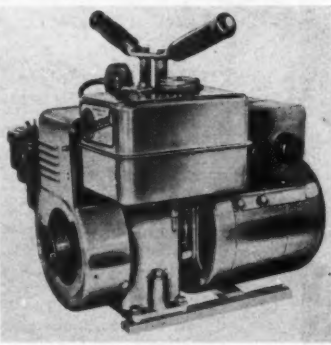
Thus, all tests which were conducted with regard to possible adverse conditions arising from seismographic work gave negative results. The only logical conclusion that can be drawn, therefore, is that seismographic shooting, as done according to Louisiana law, has no adverse effects on oysters as close as 20' from the shot either immediately or over a period of eight months.

Equipment and Supply Trade News

Universal Has New, Compact Electric Plant

A new self-contained electric plant of unusually small size has been announced by Universal Motor Co. This plant develops a full 1000 watts A.C. in a "packaged" unit taking less than 2½ cubic feet of space and weighing less than 95 lbs.

Powered by a heavy-duty, 1-cylinder, air-cooled gasoline engine, the model 1050 has an oversized generator assuring long, efficient service. It has two convenient twist-lock outlet receptacles for lighting or for operating appliances and power tools. There is a cutout for battery charging which prevents the battery from discharging back through the generator, and convenient push-button starting is a feature of the plant. All electrical equipment is completely enclosed for safety and protection.



New Universal 1,000-Watt Electric Plant.

Murphy Diesel Offers New Pamphlet

A new 48-page booklet offered by Murphy Diesel Co., 5317 W. Burnham St., Milwaukee 14, Wis., gives detailed descriptions of engineering design features to look for in Diesel engines. In addition, ratings and information on Murphy Diesel models are presented. Nineteen pages of photographs of typical installations are shown.

Sudbury Engine Alarm Warns of Overheating

An automatic engine alarm is among the products offered by Sudbury Laboratory, South Sudbury, Mass. Whenever engine temperature goes over 200 degrees, or oil pressure drops to under 7 lbs., the Sudbury engine alarm gives a combined audible (buzzer) signal and a visual (flashing red light) signal to forewarn the boat operator that something is wrong and needs attention.

Faulty water pumps, clogged intake pipe or other failures can cause overheating of a marine engine which often results in serious and costly damage. Oil pressure failure due to lack of oil or a faulty oil pump also can bring about burned out bearings and needless repair bills. But, the boat operator can be warned of these troubles by installing a Sudbury automatic engine alarm.

Many times a boat after a long run will pull up to a dock for refueling or other purposes; the ignition switch is turned off and the water drains out of the engine. At this point the engine heat builds up above normal. Should the operator start the engine while it is abnormally hot, a surge of cold water rushing through it would be quite apt to crack the block. However, on a boat equipped with a Sudbury automatic engine alarm, the alarm would forewarn the skipper not to start the engine until the temperature had dropped to under 200 degrees.

Generally when turning on the ignition it takes two or three seconds, sometimes longer, to get the engine started. During these first few seconds there is, of course, little or no oil pressure. However, the oil pressure monitor, which is a part of the Sudbury automatic engine alarm, has a one-minute delayed action mechanism built into it. This prevents any false alarm from being given during the first 60 seconds after the ignition switch has been turned on.

Wickwire Opens New Orleans District Office

A new district sales office and warehouse has been opened at 7930 Palm St. in New Orleans, La., by the Wickwire Spencer Steel Division of The Colorado Fuel and Iron Corp. Ford L. Brooks, who formerly handled sales of wire rope for CF&I in Louisiana, was appointed New Orleans district manager.

CF&I's new office will service not only the immediate area surrounding the city, but a territory comprised of Mississippi, Louisiana, Tennessee and Arkansas. Wire rope will not be warehoused at the new location, since the Corporation does not contemplate any changes in the present distribution of this product in that part of the United States. However, the sales office will act as a sales outlet for all of the Corporation's products.

American Manufacturing Promotes McAllister

Charles D. McAllister has been named vice-president of American Manufacturing Co., Brooklyn, N. Y. cordage firm. Mr. McAllister, whose former title was sales manager, will retain direction of the Company's selling activities.

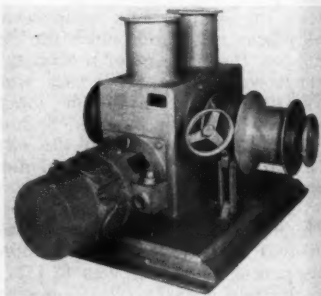
McAllister has been with American Manufacturing Co. in various capacities for more than 20 years. His latest promotion puts him in the same post once held by his father, Charles D. McAllister, who was vice-president of the company in 1924.

Hill Named Electro Dynamic Sales Engineer

William G. Hill has been named a sales engineer for General Dynamics Corporation's Electro Dynamic Motor and Generator Division, and will serve in New England.

During World War II, Hill served aboard U. S. submarines as a chief electrician. In this capacity he became very familiar with Electro Dynamic motors installed on Navy submarines. Mr. Hill holds an associate degree in mechanical engineering from Northeastern University.

Model TW2CB horizontal electric anchor windlass, manufactured by Ideal Windlass Co., Inc., East Greenwich, R. I. The model shown is a double gypsy unit with single wildcat on the starboard side, but the windlass can be obtained with the wildcat on the port side or with a gypsy and wildcat on both sides. Capacity of the unit is 3,000 lbs. at 30 F.P.M.



Hypro Engineering Introduces New Pump

A new impeller design that improves priming qualities and increases pump output with the same power, is a feature of the new general purpose pump manufactured by Hypro Engineering, Inc., 404 No. Washington Ave., Minneapolis, Minn. The impeller, moulded in a tough, durable rubber, has 12 vanes (twice the conventional number) which result in greater displacement and greatly improve pump priming. Sharp lateral wiping edges on each vane minimize friction by reducing impeller drag, produce less unit wear and improve mechanical efficiency.



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There's No "Getting Away" From It!

From the Great Lakes to the Gulf, from the East Coast to the Pacific — speak to any experienced fisherman about netting that holds the catch, and he'll answer in one word: STARR!

Because STARR is the rugged, dependable netting made from the finest quality twine and knotted to just the right mesh by experts, it's the kind of netting you can trust to do the job well everytime.



Starr Netting . . .

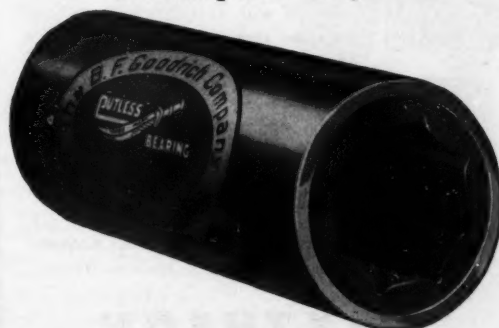
Star Performance

Write for prices on cotton, linen and Nylon netting (made from Bonded Nylock twine).

A. M. STARR NET CO.
EAST HAMPTON CONN.

B.F. Goodrich Cutless Bearings

For Propeller Shafts



Soft rubber, water lubricated, Cutless bearings give years of trouble free service on fishing vessels. Resist heat, oil, and wear. Quiet and protect shafts too. There is a size and type to fit your boat.

Available at Boat Repair Yards and Marine Equipment dealers.

Lucian Q. Moffitt, Inc.
AKRON 8, OHIO

Engineers and National Distributors

NEW



Submarine
Signal

FATHOMETER*, JR. ECHO DEPTH SOUNDER

MODEL DE-116



- RUGGED
- COMPACT
- EASY TO OPERATE
- LOW IN COST

An improved echo depth sounder at a new low cost. Range: 0-60 or 0-120 fathoms (optional) calibrated in feet and fathoms. Accessories include: remote indicator for two-position depth sounding; conversion kit for changing range of either model. New streamlined transducer requires no fairing.

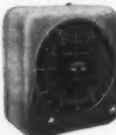
Available for input voltages of 6, 12 or 32 volts D. C.



Submarine Signal FATHOMETER* ECHO DEPTH SOUNDERS



INDICATORS — FATHOMETER CADET*. Low cost indicator, range 0-160 feet. **FATHOMETER JR.** Model DE-116. Range 0-60 or 0-120 fathoms (optional), calibrated in feet and fathoms. Available with remote indicator.



RECORDERS — Four models. Model 1373 with dual range, 0-100 and 100-200 fathoms; Model 1373S with dual range, 0-200 and 200-400 feet for shallow water; Models 1373F and 1373SF with fast chart speed for detailed recording.



RAYTHEON RADIOTELEPHONES — A complete line of new, compact, easy-to-install models for dependable contact with shore, coast guard or other vessels. 10, 25, 35 and 100 watts.

SEE YOUR AUTHORIZED RAYTHEON MARINE DEALER
Ask about Convenient Payment Plan or Write for Details

RAYTHEON

MANUFACTURING COMPANY
EQUIPMENT SALES DIVISION

DEPT. 6270, AF WALTHAM 54, MASSACHUSETTS

DISTRICT OFFICES: BOSTON, NEW YORK, CLEVELAND, CHICAGO, NEW ORLEANS, LOS ANGELES (WILMINGTON), SAN FRANCISCO, SEATTLE
INTERNATIONAL DIVISION: 19 RECTOR ST., NEW YORK CITY

Raytheon Products Include: Mariners Pathfinder* Radar, both 10 cm and 3 cm; Submarine Signal Fathometer* Echo Depth Sounders; Marine Radiotelephones and other electronic equipment.

*Reg. U. S. Pat. Off.

ciency of the pump up to 15%. Another advantage of the multi-vane impeller is the even, continuous flow of liquid realized with the design.

The pump is available in three models — ½", ¾", and 1" port sizes. The case is rustproof bronze, and other features include a stainless steel shaft, replaceable unit-type seals and straight-through ports. The pump will handle dirty water without clogging, and may be operated with electric or gasoline motors. The manufacturer recommends it for marine use, and lists such applications as bilge pumping.

Brush Aboe's Petter Div. Has New Location

The Petter Diesel Engine Division of Brush Aboe, Inc., New York, formerly located in the Empire State Building, announce that they have taken new and larger premises at 60-07 39th Ave., Woodside, Long Island, comprising offices, showroom and warehouse.

Apart from a general expansion of the company's U. S. activities, this move has been prompted by their decision to take over the distributorship of their products in six of the Eastern States. A much larger stock of engines and spare parts will be carried. The Petter small Diesel engines range from 3 to 40 hp.

Paulsen-Webber Has Pre-Measured Wire Rope

Development of a new accurately calibrated wire rope which makes "at-a-glance" length measurement possible has been announced by Paulsen-Webber Cordage Corp. of New York and Brooklyn. The new "Redi-Measured" rope is marked in colored bands at five-foot intervals, as standard practice, but may be marked in feet or fathoms at any desired intervals for ready measurement. Prior to this development, the wire rope only could be measured by special warehouse measuring equipment or by unreeling it and measuring wanted lengths by hand, on the ground or floor, exposing the desired length of rope to dirt and causing delays, possible abrasion damage, and inefficiency in handling.

Perfecting after extensive research and study of special marking pigments and techniques, the marking now is being applied on a mass production basis to two top grades of wire rope, improved plow steel, and standard plow wire rope, in the Company's Brooklyn plant. The rope is marked in 20 dimensions of these grades ranging from ½" to 1½" diameters. On request other grades of Paulsen-Webber wire rope also may be furnished marked to meet demands for ready measurement of length as called for.

Whaling History Subject of New Book

Exactly as the men themselves ventured the length and breadth of the Seven Seas, so does the new book entitled *The Sea-Hunters* explore the contributions made by the dauntless New England whalers to the history, geography and economy of America. From old log and account books and journals, Edouard A. Stackpole has pieced together the dramatic adventures of American whalers.

His book has been published by J. B. Lippincott Co., East Washington Square, Philadelphia, Pa., and is priced at \$7.50. It offers a detailed history of the development of American whaling for the period 1635 to 1835, and a full account of the transition of the whaling industry from the Revolutionary War to the War of 1812. Along with this chronicle goes a detailed study of the migrations of the whalers after the Revolution to ports not closed to them by the British.

The author of five books in addition to *The Sea-Hunters*, Mr. Stackpole has been president of the Nantucket Historical Association since 1938. In 1953 he was appointed curator of the Marine Historical Association, Mystic Seaport, Mystic, Conn.

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Fish Landings

For Month of July

Hailing fares. Figure after name indicates number of trips.

GLOUCESTER

Alden (6)	184,000	Lucille B. (8)	46,000
Althea (3)	64,000	Lucy Scola (8)	112,000
Alvan T. Fuller (2)	162,000	Madame X. (5)	15,800
Anna Guarino (7)	53,000	Malolo (2)	98,000
Annie (9)	82,300	Manchonoch (2)	92,000
Annie II (6)	24,000	Manuel P. Domingos (2)	340,000
Anthony & Josephine (8)	184,000	Margaret Marie (6)	72,000
Atlantic (2)	165,000	Margie & Roy (3)	6,000
Baby Rose (1)	105,000	Margie L. (3)	32,000
Benjamin C. (1)	180,000	Maria Immaculata (15)	370,000
Billy B. (8)	67,000	Marion & Alice (2)	205,000
Bobby & Jack (2)	65,000	Maris Stella (2)	335,000
Bonaventure (2)	290,000	Mary (8)	116,000
Brookline (1)	220,000	Mary & Josephine (2)	386,000
California (1)	25,000	Mary E. (8)	59,500
Can Cara (1)	50,000	Mary Jane (2)	320,000
Carlo & Vince (5)	128,000	Mary Rose (1)	150,000
Carol Jean (8)	283,000	Mary W. (4)	90,500
Catherine (5)	50,000	Michael F. Dinsmore (1)	57,500
Catherine Amirault (1)	70,000	Minkette 1st (2)	900
Catherine L. Brown (1)	145,000	Mocking Bird (2)	135,000
Charlotte M. (1)	125,000	Mother Ann (2)	500,000
Chebeague (6)	160,000	Natale III (4)	147,000
Cherokee (3)	250,000	No More (14)	139,000
Cigar Joe (6)	295,000	North Sea (2)	325,000
Clipper (2)	300,000	Nova Luna (3)	13,000
Columbia (1)	200,000	Novelty (5)	92,000
Courier (1)	200,000	Nyoda (4)	36,600
Curlew (2)	325,000	Ocean Life (2)	700,000
Dawn (9)	86,500	Our Lady of Fatima (2)	450,000
Della Mae (2)	220,000	Peggy Bell (1)	300
Dolphin (2)	245,000	Pilgrim (2)	330,000
Doris F. Amoro (2)	85,000	Pioneer (8)	233,000
Doris H. (3)	5,500	P. K. Hunt (2)	167,000
Edith L. Boudreau (2)	147,000	Positive (2)	290,000
Eleanor (5)	143,000	Priscilla (2)	4,000
Emily Brown (1)	190,000	Providenza (4)	10,000
Estrela (2)	390,000	Puritan (1)	125,000
Eva M. Martin (4)	30,000	Resolute (1)	80,000
Eva II (3)	24,600	Romerly (1)	1,500
Evelina M. Goulart (2)	141,000	Rose & Lucy (6)	118,000
Evelyn A. (1)	300	Rosemarie (8)	307,500
Falcon (4)	119,000	Rosie & Gracie (10)	528,000
Felicia (1)	220,000	Rosie B. (1)	8,000
Florence & Lee (2)	370,000	Rosie C. (6)	43,000
Flow (2)	575,000	St. Anthony (1)	160,000
Frances R. (6)	157,000	St. Francis (5)	130,000
Frankie & Jeanne (7)	74,000	St. John (6)	77,000
Gaetano S. (1)	130,000	St. Mary (9)	211,500
Gertrude E. (7)	51,500	St. Nicholas (1)	180,000
Golden Eagle (2)	275,000	St. Peter II (2)	320,000
Hazel B. (2)	245,000	St. Providenza (14)	134,000
Helen B. (8)	109,000	Sacred Heart (9)	114,000
Hiawatha (1)	9,000	Salvatore & Grace (4)	96,000
Hilda Garston (1)	170,000	Sammy C. (5)	4,800
Holy Family (1)	160,000	Santina D. (1)	28,000
Holy Name (6)	164,000	Sarah M. (3)	23,000
Immaculate Conception (2)	25,000	Sea Dog (9)	150,500
Irina Virginia (7)	101,100	Sea Hawk (2)	280,000
Isabelle J. II (6)	46,500	Sea Queen (2)	97,000
Jackie B. (4)	192,000	Sea Rambler (1)	60,000
Jackson & Arthur (9)	123,000	Sebastiana C. (2)	45,000
J. B. Junior (8)	295,000	Serafina (1)	10,000
Jean & Patricia (3)	48,000	Serafina N. (6)	128,000
Jennie & Julia (3)	61,000	Serafina II (3)	132,000
Jennie & Lucia (2)	174,000	South Sea (3)	175,000
Joe D'Ambrosio (1)	3,000	Sunlight (1)	195,000
Johnny Baby (4)	49,000	Superior (9)	364,000
Joseph & Lucia (2)	280,000	Sylvester F. Whalen (2)	330,000
Josie II (1)	2,000	Theresa M. Boudreau (1)	200,000
Kelpie (1)	800	Tina B. (1)	100,000
Killarney (2)	370,000	Trimembral (10)	101,000
Kingfisher (1)	220,000	Vincie N. (7)	231,000
Lady of Good Voyage	248,000	Virginia Ann (7)	155,000
Limit (7)	93,000	We Three (5)	90,000
Linda B. (7)	30,500	White Owl (5)	53,000
Little Flower (9)	271,000	Whitstone (3)	152,000
Little Joe (8)	162,000	Wild Duck (2)	290,000
Lone Ranger (2)	31,500	Winthrop (1)	200,000
Yankee (1)	10,000		

Scallop Landings (Gals.)

Althea Joyce (1)	1,050	Nellie-Pet (2)	1,900
Dartmouth (1)	1,200	Noah A. (1)	225



When the spray is like needles

...keep dry

Seams are sealed and the whole garment's vulcanized to make it watertight. Specially developed compounds provide greater resistance to sun, water and abrasion. Roomy fit for freedom and comfort; rubber work clothing made to withstand long wear.



U. S. SAFE AND SEINE SUIT

- extra roomy
- vulcanized watertight seams
- underarm ventilation
- rust-resistant ball and socket fasteners
- overalls: large bib front, adjustable shoulder straps.

U. S. SQUAM HAT

- reinforced water-shed brim

U. S. RUFF-N-TUFF EUREKA SUIT

- vulcanized watertight seams
- inside fly front
- rust-resistant ball and socket fasteners
- underarm ventilation
- overalls: bib front, adjustable elastic suspenders.

TRAWLER BOOTS

- Black thigh
- Felt lined
- "Fin-Guard" vamp

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RAYNSTERS®



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WHAT IS YOUR WORK?



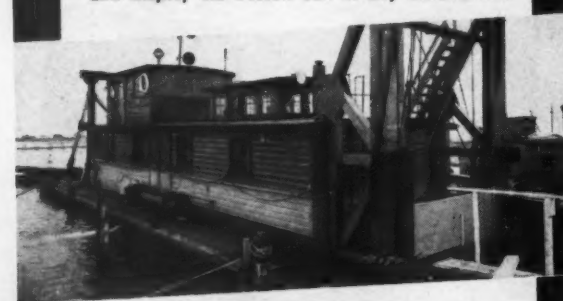
FISHING?

Cat® Marine Engines let you spend all your time fishing. Operating on No. 3 furnace oil, Cat Diesels turn out steady power at less cost—and for many more years. Ask for information on the Cat Diesel that fits your boat!



TUG AND TOW?

Caterpillar® Marine Engines are rated with all equipment in place. You get honest horsepower that immediately answers the controls. Compact and simple, Cat Diesels can fit any installation!



DREDGING?

Steady production with little attention is given by Caterpillar Diesel Power. A complete line of equipment and accessories enable you to custom-tailor power to fit your needs.

H. O. Penn Machinery Co. marine power specialists can furnish literature, engineering assistance or service—call on them any time!

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H. O. Penn Machinery Co.

140th St. & E. River New York, N. Y. Dutchess Turnpike Poughkeepsie, N. Y. 496 Jericho Turnpike Mineola, L. I. 136 Day Street Newington, Conn.

NEW BEDFORD

Adventurer (1)	24,300	Liberty (1)	25,000
Anastasia E. (2)	43,500	Lorine III (2)	33,100
Angeline (1)	1,500		
Annie Louise (3)	20,400	Madeline (1)	4,000
Annie M. Jackson (4)	118,000	Magellan (2)	58,000
Arnold (3)	32,300	Maria-Julia (4)	80,700
Arthur L. (3)	94,000	Mary & Joan (3)	94,000
Austin W. (3)	60,400	Mary M. (1)	3,900
		Mary Tapper (3)	82,500
Bernice (2)	12,000	Meta & Margaret (1)	17,500
		Minnie V. (3)	20,200
Capt. Deebold (3)	77,600	Molly & Jane (2)	33,500
Charlotte G. (3)	51,300		
Chas. E. Beckman (4)	31,200	Noreen (3)	140,800
Connie F. (2)	58,300	North Cape (2)	50,000
C. R. & M. (4)	87,900		
		Pauline H. (2)	131,700
Dauntless (2)	31,700	Phyllis J. (3)	12,000
Dorothy (1)	2,300		
Driftwood (3)	14,200	Question (2)	5,500
Ebenezer (4)	15,900	Reliance (1)	4,500
Elva & Estelle (2)	19,800	Roberta Ann (3)	63,700
Elva L. Beal (4)	25,100		
Eugene & Rose (3)	91,300		
		Rosemarie V. (2)	44,400
Felicia (2)	79,300	St. Ann (4)	154,500
		Sandra & Jean (1)	19,500
Gladys & Mary (3)	98,200	Santa Cruz (1)	41,700
Growler (3)	87,100	Santa Treza (1)	6,000
		Sea Fox (3)	53,300
Harmony (3)	62,500	Sea Hawk (3)	90,500
Hope II (3)	110,700	Shannon (3)	46,300
Huntington Sanford (3)	48,300	Solveig J. (3)	122,000
		Sonya (3)	67,500
Invader (3)	75,100	Stanley B. Butler (1)	55,000
Ivanhoe (2)	36,600	Susie O. Carver (4)	20,100
Jacintha (2)	65,500	Teresa & Jean (3)	130,700
Janet Elise (3)	16,200	Three Pals (3)	72,300
J. Henry Smith (2)	13,000	Two Brothers (N.B.) (4)	15,400
Jimmy Boy (5)	100,000	Two Brothers (N.J.) (2)	24,000
Joan & Tom (2)	25,800		
Joan & Ursula (1)	32,700	Venture 1st (3)	103,300
		Victor Johnson (3)	76,100
Katie D. (2)	66,000	Viking (4)	103,100
Kelbarsam (3)	34,900	Viking (Chil.) (1)	5,500
Lera G. (3)	79,400	Whaler (2)	78,000

Scallop Landings (Lbs.)

Abram H. (2)	21,300	Liboria C. (2)	21,100
Agda (3)	32,000	Linda & Warren (2)	13,900
Amelia (3)	31,750	Linus S. Eldridge (2)	21,200
Anna (2)	11,200	Louis A. Thebaud (3)	30,500
Antonina (2)	15,700	Louise (3)	31,200
		Lubenray (2)	21,000
B & E (1)	10,500		
Barbara (3)	31,500	Major J. Casey (1)	10,500
Barbara M. (3)	23,800	Malene & Marie (3)	32,300
Barracuda (1)	1,350	Maridor (2)	21,100
Bobby & Harvey (2)	21,000	Martha E. Murley (3)	31,400
Bright Star (2)	21,400	Mary Anne (2)	21,500
		Mary Canas (1)	2,700
Camden (3)	31,500	Mary E. D'Eon (2)	21,000
Cape Cod (2)	9,700	Mary J. Hayes (2)	21,000
Cap'n Bill (2)	18,000	Mary R. Mullins (2)	21,300
Carl Henry (2)	21,100	Moonlight (3)	31,850
Carol & Estelle (3)	31,175	Muskegon (2)	21,000
Carolyn & Priscilla (1)	8,500		
Catherine & Mary (3)	31,800	Nancy Jane (2)	21,000
Charles S. Ashley (2)	20,800	Nantucket (3)	31,400
Christina J. (3)	30,950	New Bedford (3)	31,400
		New Dawn (2)	11,125
Daghy (2)	15,500	Newfoundland (2)	20,500
Dartmouth (1)	1,500	North Star (2)	20,825
David A. (2)	17,125		
David B. (1)	10,125	Olive M. Williams (2)	20,100
Doris Gertrude (3)	35,800		
Dorothy & Mary (2)	20,900	Palestine (1)	10,400
		Pearl Harbor (1)	10,500
Edith (2)	9,000	Pelican (3)	31,900
Eleanor & Elsie (3)	32,000	Peter & Linda (2)	10,100
Elizabeth N. (3)	31,700	Petrel (1)	10,500
Empress (2)	21,600	Porpoise (3)	31,850
Ethel C. (3)	31,500		
Eunice-Lillian (3)	29,300	Red Start (2)	21,000
		Reid (1)	8,000
Fairhaven (2)	21,100	Richard Lance (1)	10,500
Falcon (3)	31,580	Rosalie F. (2)	20,425
Falcon (N.Y.) (1)	6,500	Rosie II (2)	19,000
Flamingo (3)	32,850	Ruth Moses (3)	31,450
Fleetwing (2)	21,000		
Francis J. Manta (2)	21,000	Sea Hawk (2)	21,100
Francis Marion (1)	2,000	Sea Ranger (1)	10,500
Friendship (2)	15,500	Shirley & Roland (2)	10,700
Friendship (N.Y.) (1)	10,800	Smilyn (3)	29,900
		S No. 31 (1)	10,500
Gannet (2)	21,700	Sunapee (2)	21,100
Gloria F. (3)	24,125		
		3 & 1 & 1 (2)	10,600
Janet & Jean (3)	30,550		
Jerry & Jimmy (3)	31,500	Ursula M. Norton (3)	31,800
John David (1)	3,000		
Josephine & Mary (2)	20,625	Victory II (1)	3,800
Junojaes (3)	31,300	Vivian Fay (3)	31,650
Kingfisher (3)	32,750	Wamsutta (3)	31,200
Lauren Fay (3)	31,600	Wm. D. Eldridge (2)	21,250
		Wm. H. Killigrew (2)	21,200

Swordfish Landings (No. of Fish)

Huntington Sanford (1)	3	Martha E. Murley (1)	5
Jennie M. (1)	4	Two Brothers (N.J.) (1)	1

WOODS HOLE

25,000	Angeline (3)	2,700	J. Henry Smith (1)	2,700
33,100	Angenette (2)	2,000	Judy-Sue (8)	3,500
4,000	Bluefin (1)	1,400	Kathy Dick (4)	2,800
58,000	Clara C. (3)	4,900	Little Lady (4)	5,300
80,700	Clara T. (1)	1,100	Madeline (2)	6,900
94,000	Dorothy (1)	1,400	Morning Star (5)	7,700
3,900	Driftwood (1)	2,200	Phyllis J. (1)	2,500
82,500	Eleanor K. (2)	6,600	Priscilla V. (3)	45,500
17,500	Eugene H. (2)	102,600	Pvt. Frank Kessler (1)	4,200
20,200	Eva Clark (5)	3,500	Reliance (2)	3,800
33,500	Kvelyn F. (5)	9,800	R. W. Griffin, Jr. (1)	29,900
140,800	Genevieve D. (5)	6,000	St. George (3)	4,900
50,000	Helen Mae (5)	4,800	Sammy B. (1)	2,100
131,700	Intrepid (3)	4,300	Santa Treza (1)	1,300
12,000	Irene (4)	13,600	Viking (1)	2,900
5,500	Jen-Walt (5)	12,600		

Scallop Landings (Lbs.)

Brant (2)	20,250	Mary Ganas (1)	9,048
Bright Star (1)	10,125	Mary R. Mullins (1)	10,125
Gambler (1)	10,125	Pearl Harbor (2)	20,250
Julia K. (2)	5,858	Petrel (1)	7,348
Marie & Katherine (2)	12,798	Sea Ranger (1)	10,125
Marmax (2)	20,250		

Swordfish Landings (Lbs.)

Christine & Dan (2)	22,837	Southern Cross (1)	9,700
Dorothy & Everett (2)	800	Three Bells (1)	9,600
Gertrude D. (1)	11,973		

PORTLAND

Agnes & Elizabeth (2)	100,300	Nellie M. (4)	46,500
Alice M. Doughty (1)	51,800	Nora D. Sawyer (8)	95,900
Alice M. Doughty II (2)	62,800	Norland (1)	500
Annie Louise (15)	291,800	Ocean Clipper (2)	163,100
Betty-Nell (17)	170,400	Ocean Wave (2)	116,600
Captain (1)	5,000	Onward II (1)	27,000
Carmella & Lois (11)	107,200	Onward III (20)	558,100
Cathy & Aldie (12)	133,000	Powhatan (3)	163,600
Challenger (19)	331,100	Rebecca II (18)	383,300
Chanco (2)	145,100	Resolute (2)	44,000
Crescent (19)	555,500	St. George (1)	158,000
Dart (3)	12,600	St. Michael (16)	175,500
Elmor & Jean (3)	119,700	Sea King (3)	96,600
Ethelina (3)	168,300	Shady Lady (2)	17,800
Geraldine & Phyllis (2)	175,000	Silver Bay (2)	337,200
Gretchen & Dale (16)	164,500	Theresa R. (2)	280,000
Gulf Stream (2)	385,400	Thomas D. (1)	14,500
Kennebec (1)	16,400	Vagabond (3)	225,500
Lawson (2)	99,000	Vida E. (3)	73,000
Marie H. (3)	52,500	Vida E. II (18)	451,000
Mary & Helen (19)	259,500	Voyager (3)	107,200
Mascot (13)	169,700	Wawenock (2)	465,300
Medan (2)	559,400		

Scallop Landings (Lbs.)

Adele K. (1)	9,679	Clara Louise (1)	7,939
Aloha (1)	10,400	Mary & Julia (2)	21,000
Althea Joyce (1)	4,700	Monte Carlo (2)	13,974
Catherine T. (1)	5,919	Vandal (2)	21,000

NEW YORK

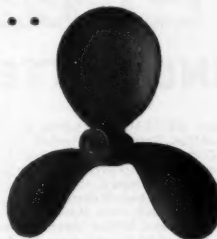
Scallop Landings (Gallons)

Beatrice & Ida (2)	2,300	Miriam A. (2)	2,250
Buzz & Billy (1)	1,125	Norseman (2)	1,660
Carol-Jack (2)	2,250	Phyllis J. (1)	900
Catherine C. (3)	3,325	Quest (2)	925
Clipper (2)	1,825	Rainbow (2)	1,800
Enterprise (1)	800	Reld (1)	960
Florence B. (1)	1,150	Rockaway Belle (2)	1,375
Jenny (1)	600	St. Rita (2)	1,625
Malvina B. (1)	700	S. No. 31 (2)	2,050
Marie (1)	800	Susan (2)	1,725

STONINGTON, CONN.

America (6)	30,000	Laura (13)	2,400
Bette Ann (16)	17,300	Lt. Thomas Minor (6)	11,400
Betty Boop (17)	36,700	Lindy (1)	300
Carl J. (5)	6,100	Lisboa (15)	15,300
Carol & Dennis (2)	6,600	Little Chief (15)	12,800
Carolyn & Gary (18)	44,900	Mary A. (18)	24,700
Catherine (12)	15,500	Mary H. (15)	12,900
Connie M. (16)	20,000	New England (4)	3,500
Conquest (8)	17,200	Old Mystic (19)	56,800
Eleanor (5)	1,300	Our Gang (2)	5,000
Fairweather (21)	64,500	Rita (7)	22,900
Five Sisters (11)	40,100	Rose L. (9)	1,600
Harold (18)	20,800	Theresa (7)	48,000
Irene & Walter (19)	52,500	William B. (19)	76,900
Jane Dore (14)	14,400		

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 Louis Posner, Fish Pier, Boston, Massachusetts
 Robert Horman, 903 State Street, New Haven, Connecticut
 West Haven Shipyard, Main and Water Streets, West Haven, Conn.
 Marine Electric Corporation, 600 Fourth Avenue, Brooklyn, New York
 United Boat & Dock Service, City Island, New York 64, New York
 Sutter Brothers, 2501 Knapp Street, Gerritsen Beach, Brooklyn, N. Y.
 Charles W. Rogers, Curtis & Union Avenues, Manassquan, New Jersey
 Marine Equipment & Supply Co., 114 Walnut St., Philadelphia 6, Pa.
 Johnson & Towers, 113 Market Street, Philadelphia, Pennsylvania
 Nat Gates Jr. & Son, 90 Compromise Street, Annapolis, Maryland
 Johnson & Towers, 414 Key Highway, Baltimore, Maryland
 United Oil Company, Baltimore & Kresson Streets, Baltimore, Maryland
 Norfolk Marine Company, 507 Front Street, Norfolk, Virginia
 Machine & Supply Company, P. O. Box 98, Beaufort, North Carolina
 Hay Oil Company, 25 Folly Road, Charleston, South Carolina
 Marine Motors Sales Corp., 1522 Hendricks Avenue, Jacksonville, Fla.
 Diesel Sales Company, Inc., 19 N. W. South River Drive, Miami 36, Fla.
 Chapman Electric Company, 16 South Water Street, Mobile, Alabama
 Kennedy Marine Company, P. O. Box 915, Biloxi, Mississippi
 Olympic Power Application Co., 118 LaSalle Street, New Orleans, La.
 Twenty Grand, Inc., Morgan City, Louisiana
 Lake Charles Marine Sales, 1140 Front Street, Lake Charles, Louisiana
 McIntosh Electric Supply Co., 4775 Port Arthur Road, Beaumont, Texas
 Houston Engine & Pump Co., 1939 Cullen Boulevard, Houston, Texas
 Nash & Cotton, 1818 Avenue C, Galveston, Texas
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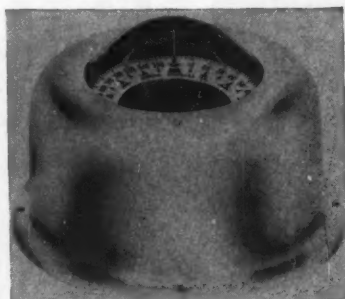
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Agatha & Patricia (2)	71,900	Mary & Jennie (8)	160,500
Alden (1)	50,300	M. C. Ballard (1)	66,300
American Eagle (4)	112,200	Michael F. Dinamore (1)	39,000
Angle & Florence (1)	21,200	Michigan (3)	381,400
Annie & Josie (7)	110,900		
Arlington (3)	418,900	Nancy B. (5)	124,700
Atlantic (3)	239,500	Natale III (2)	54,000
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Ave Maria (O.T.) (2)	101,600	Neptune (3)	256,700
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Bonnie (2)	253,600	Olympia (4)	130,300
Bonnie Lou (3)	235,300	Olympia La Rosa (4)	190,800
Brighton (3)	279,000		
		Pam Ann (3)	158,600
Calm (3)	328,500	Phantom (3)	347,500
Cambridge (3)	318,300	Plymouth (3)	247,700
Carmela Maria (4)	64,100		
Catherine B. (Drag.) (4)	159,800	Racer (3)	292,500
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		Rosa B. (3)	327,000
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Felicia (1)	50,000	Sacred Heart (7)	124,300
Flying Cloud (3)	339,500	St. Anna (8)	58,200
4-C-688 (1)	2,600	St. Joseph (3)	52,100
4-H-823 (7)	29,100	St. Peter (4)	145,100
4-R-630 (5)	22,000	St. Rosalie (2)	67,800
Francis L. MacPherson (2)	65,800	St. Victoria (2)	103,800
		Salvatore & Grace (1)	21,100
Hilda Garston (1)	84,000	San Antonio II (7)	74,600
		San Calogero (9)	208,700
Jane B. (2)	174,400	Santa Maria (5)	168,500
J. B. Junior (3)	225,000	Santa Rita (7)	38,400
Jenn & Patricia (1)	19,000	Santa Rosalia (2)	4,200
Jennie & Julia (1)	25,600	Santina D. (1)	9,400
Joe D'Amrosio (5)	43,300	Savola (7)	48,300
Jorgina Silveira (2)	57,600	Sea Queen (1)	34,800
Josephine F. (5)	26,000	Serafina II (1)	26,100
Josephine P. II (2)	46,500	Superior (1)	9,000
Josie M. (3)	45,700	Swallow (3)	255,000
Lawrence Scola (3)	38,200	Texas (2)	172,400
Leonarda (7)	47,100	Thomas Whalen (3)	268,500
Leonard & Nancy (3)	122,400	Triton (3)	293,600
Little Nancy (4)	135,400		
Little Sam (7)	204,000	Wave (3)	373,900
Lone Ranger (2)	83,000	Weymouth (3)	279,800
Lucky Star (3)	223,800	Wm. J. O'Brien (3)	300,700
		Winchester (3)	337,100
Mabel Mae (3)	223,300	Wisconsin (3)	406,100
Maine (1)	105,800		
Manuel F. Roderick (2)	84,600	Yankee (3)	104,100

Scallop Landings (Lbs.)

Catherine T. (2) 12,300

South Carolina Shrimp Catches Highest in Five Years

Although fewer trawlers than usual are dragging for shrimp off the South Carolina coast, catches are the best since 1948. Reports of commercial shrimpers indicate the daily take per boat is the highest in five years, according to G. Robert Lunz, director of the Bears Bluff Laboratory.

So far this year some 284 trawlers have been licensed to drag in coastal waters, according to records of the Wildlife Resources Commission. As many as 650 boats have been issued licenses in previous years.

Mr. Lunz, who is conducting research into shrimp habits, said size of the shrimp taken had been exceptionally good. However, the large white shrimp recently have been replaced by a numerically larger run of grooved brown shrimp.

Fishermen report most shrimp taken during July ran 30 to 40 to the pound. The larger varieties, however, drop to as low as 25 to the pound. State law forbids taking shrimp smaller than 55 count to the pound.

Fisheries Inspectors Have Busy Year

A total of 438 cases alleging illegal fishing operations were made by State inspectors during the fiscal year ending June 30. Alonzo B. Seabrook, director of commercial fisheries for the State Wildlife Commission, said that the cases made, 355, have been settled with inspectors reporting \$3,447 in fines.

Canadian Report

By C. A. Dixon

Loans Available to Replace Lost Traps

The Honorable James Sinclair, Minister of Fisheries, and the Honorable Alexander W. Matheson, Premier of Prince Edward Island, have announced details of a joint loan arrangement to assist Prince Edward Island lobster fishermen to replace traps lost during recent storms.

The severe storms which occurred late in May resulted in the loss and destruction of lobster gear far above the normal level experienced by fishermen in Prince Edward Island. Their earnings were seriously reduced, and they will have to replace abnormally large amounts of gear if they are to carry on lobster fishing next Spring.

The loans will be based on the number of traps lost in May and June of 1953. An annual replacement rate of 25 percent is considered normal for the area. Therefore, loans will be made only on the number of traps lost by each individual fisherman over and above this 25 percent of traps set out at the beginning of last season in the Prince Edward Island portion of District 7b.

The maximum loan available will be based upon 150 traps multiplied by the unit cost of traps claimed by eligible fishermen, but this unit cost cannot exceed \$3.00 per trap. The loans will be interest-free if they are repaid in regular installments over a three-year period.

More Sardine Canneries Open

After a shutdown of more than a year, some of the sardine factories which had been idle were opened during July in the southern New Brunswick area, including that of the Seal Cove Canning Co., Ltd., of Seal Cove, Grand Manan, a subsidiary of Connors Bros., Ltd., Black's Harbor. During the closed period additions to the plant were made which provide room for 60 women packers and permit increased production. These in addition to male employees probably will find steady work from now on if the fish supply should be adequate for full operation. The managing-director of the plant is Lawrence C. Cook of Seal Cove, while Capt. Robert Green of the same village is the general superintendent.

Supplies of fish all the Spring and early Summer have been subnormal and not sufficiently large to permit the operation of all the Canadian factories, those of Connors Bros., Ltd., having been able to handle the entire catch in Charlotte County waters. For a time supplies of sardines were boated across the Bay of Fundy to the New Brunswick plants from Nova Scotia at prices lower than that of the union price of \$20.00 paid in New Brunswick.

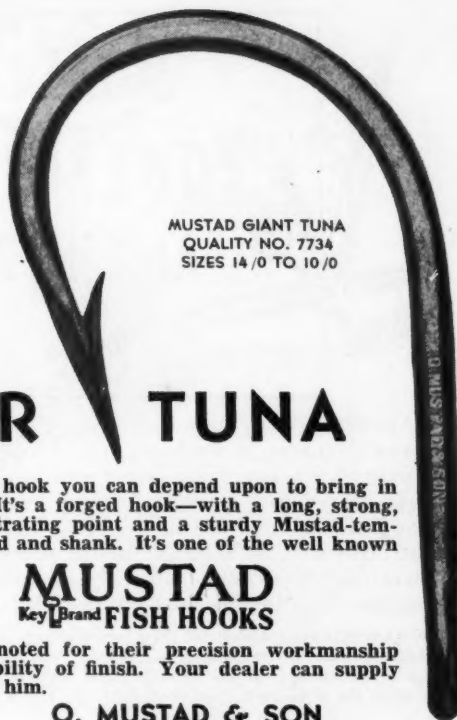
Pollock Are Plentiful

As August arrived there were plenty of pollock in the Passamaquoddy Bay region, but the fish were raising Cain with what few sardines were being caught by weir-men at Deer Island. One weir owner reported having lost all or nearly all of his sardine catch, as ranting schools of pollock entered the structure and "skivered" the little fish in jig-time. A day or so later the weir was seined and 1,400 pollock were dipped out.

Lobsterman Drowns After Shark Rams Boat

John D. Burns, Forchu, N. S. lobsterman, drowned July 9 when a charging shark punched a 2-foot hole in his boat and upset it. Three other men in the craft reached shore safely.

The shark, which left a broken tooth embedded in the planking of the boat, was identified by Dr. Needler of the St. Andrews Biological Station as one of the man-eating variety.



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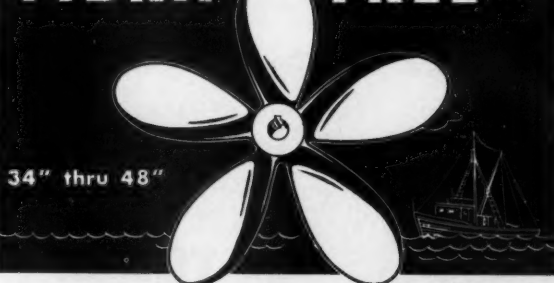
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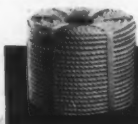
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Gloucester Vessels Tied Up Pending Contract Signing

Gloucester vessel owners and union fishermen were deadlocked August 7 after a contract negotiation session held in Boston with State and Federal conciliators. The conciliators failed to resolve the dispute, which threatens to keep union fishing boats tied up for some time. William G. Doherty represented the State and David Hilliard was Federal mediator at the conference, which was held at the State House in Boston.

The proceedings were opened when Melvin I. Bernstein, attorney for the Vessel Owners Association, stated the attitude of the 100 ocean perch dragger operators toward the union's contract demands, which center around a proposed welfare fund to include both fishermen and owners. The fund would be composed of one-half of one percent of each fishing company's gross stock. The union also asks a dollar a day minimum wage on all "brokers."

Bernstein contended that the owners are unable to pay the additional amounts asked by the fishermen. The majority of the vessel owners, he told the conciliators, feel that the boats should be actively fishing during the negotiations for a new contract. At present, almost all are tied up, in response to a union order.

Patrick McHugh, secretary-treasurer of the Atlantic Fishermen's Union, presented the other side of the picture, contesting Bernstein's assertion that the owners were unable to meet the new demands.

Negotiating committees for the Vessel Owners Association and the Gloucester branch of the Fishermen's Union are understood to have come to an agreement to recommend bonded weighers of fish for a three-month trial period. Both committees will have to submit the recommendation to their entire organizations for approval. If both Union and boat owners accept the terms for bonded weighers, it will be up to the ocean perch processors as to whether or not Gloucester will have bonded weighers.

"Flow" Catches Giant Ocean Perch

The granddaddy of all ocean perch was landed in Gloucester July 30 by the *Flow*, Capt. James N. Tucker. The fish weighed 16 lbs., 2 oz., and was believed to be over 40 years old. An average ocean perch weighs 1½ lbs.

The *Flow* was dragging in 1100' of water on the western edge of Grand Bank, off the southwestern coast of Newfoundland, when the big fish came up in the drag. The fish was frozen at a local plant, and is to be examined by George F. Kelly, fisheries research biologist at the Woods Hole Fish & Wildlife Service station. It measured 29.13 inches from the nose to the fork of the tail.

"Big Chief" Lands Heavy Pogie Fare

What was believed to be the biggest trip of fish ever landed at Gloucester was brought in July 20 by the 110' steel seiner *Big Chief*, Capt. William Henderson. She weighed out 595,080 lbs. of pogies (menhaden) at Gloucester By-Products Co. For the 14-hour trip, the craft stocked close to \$7500.

The *Big Chief*, which hails from Beaufort, N. C., in the two weeks ending July 20 landed six trips at Gloucester By-Products for a total of 2,312,230 lbs. The craft operates with twin seine boats, and has a crew of 27 men. She has been getting her catches between Plymouth and the Cape Cod Canal. The pogies are unloaded by means of a "clam shovel."

With little sign of mackerel on the horizon, Gloucester seiners are turning their attention to pogies and alewives. There are a dozen Gloucester and southern craft engaged in this type of seining. The menhaden sell for 1¼¢ a pound, while alewives go for 2¼¢. Since the middle of June, Gloucester By-Products reports having

taken between eight and ten million pounds of pogies from the seiners.

"Olivia Brown" Sinks

Seven Gloucestermen were rescued July 4 from the 84' ocean perch dragger *Olivia Brown*, which sank off Shelburne, N. S. The Gloucester dragger *Edith L. Boudreau*, Capt. David J. Ribeiro, was the rescue ship. The *Olivia Brown* left Gloucester June 26 for an ocean perch trip, and had 50,000 lbs. perch aboard when the mishap occurred. Owned by Capt. John M. Fragata, the craft was built at Essex in 1927.

Connecticut Market Fish Catch Continues to Rise

Market fish landings continued to climb at Stonington docks during July, as the Summer scup run proved heavy and steady. Scup was chiefly responsible for pushing the total production up to an estimated 692,200 lbs. In June the fleet landed 528,400 lbs. and in May 307,000 lbs.

Capt. Roscoe Bacchiocchi's dragger *William B.* out of the Bindloss dock was highliner with 76,900 lbs. Other vessels topping 50,000 lbs. were Capt. Joe Roderick's *Fairweather*, Capt. George Berg's *Old Mystic*, and Capt. Walter Schroder's *Irene & Walter*.

Blackback flounder was the principal species in the remainder of the catch. Few fluke were reported, and even less butterfish. A sprinkling of squid was found in the mixed fish.

Trash fish varieties were still a prime factor in the fleet's economy, as the draggers netted 802,000 lbs. of the species used for fish meal, reduction, fertilizer and pet food. The total trash fish catch, however, was down about a half-million lbs. from June.

Oyster Ground Committee Appointed

At a special town meeting held in Guilford recently, a resolution was passed which called for the appointment of a five-man Oyster Ground Committee to designate natural oyster beds in Guilford. The meeting also authorized the Board of Selectmen to make the appointments for the Committee, and nominated Joseph S. Dolan, Arthur E. Hall, G. Benjamin Weissman, Harold Hall and Leonard D. Hubbard. The Selectmen since have confirmed appointment of these men.

When the natural oyster bed limits are definitely established, any person who desires may apply to the Oyster Ground Committee for a suitable place in which to cultivate oysters, such area not to exceed two acres in size. The General Statutes state that no natural clam or oyster bed can be leased by the town, that such beds are for the general use of the public.

Lima Skippering "Conquest"

Capt. Jack Lima has switched from the *Lt. Thomas Minor*, and now is commanding Tom Tengelsen's dragger *Conquest*, working out of Longo's dock, Stonington.

Landings Show Gain in First Six Months

Stonington fish and shellfish production for the first six months of 1953 totalled 6,164,500 lbs., and showed an increase of more than a million lbs. over the catch for the same period of last year. Finfish landings of 6,156,100 lbs. accounted for over 99% of the entire yield. The shellfish take was 8,400 lbs., and consisted wholly of squid.

During the six-month period trash fish landings amounted to 2,635,100 lbs., which was more than eight times as much as in the same months of 1952. Herring also accounted for a large proportion of the catch, production of this variety having been 2,235,300 lbs., for a drop of nearly 350,000 lbs. from last year. Scup landings were up almost 100 thousand lbs. to 374,000.

However, cod fell to 25,600 lbs. from 120,300 lbs.; blackback flounder was off approximately 200 thousand lbs. to 420,200; and the 76,700-lb. fluke yield showed a decrease of over a hundred thousand lbs.



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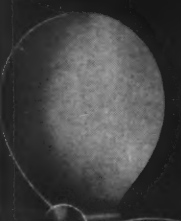
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Vineyard Bailings

By J. C. Allen

As July fades out in the wake we find ourself in the midst of the third, possibly the fourth Summer of abnormally high temperatures. A foretaste of the hell that waits plenty of us, no doubt, but we have to live in it now, maybe to get used to it.

There is plenty of evidence to indicate that if we had a blow that shook the fillings right out of a man's teeth, there might be some very extra fishing in both shoal water and blue. Naturally this is only a guess, and there are a hell of a lot better men than ourself who are spending the heft of their time guessing and hoping that they may guess right.

All we can say is that every cussed thing that swims seems to be making passage. Nothing of any consequence appears to be putting down permanent moorings. The sword, the bluefish, even the cussed sharks, all appear to be heading for somewhere else. If anyone hits 'em while they are present, well, he catches in more or less as the case may be. If he misses 'em, why then he has to chase 'em.

The normally-present varieties of seafood in the raw all have appeared according to what the calendar indicated—scup, sea bass, butters, flukes, sword, bluefish, and so on. Flukes really have given our hard-working sea skimmers their daily bread and gravy, and that is the simple truth. The heft of our fishermen operate small craft, and if they couldn't scrape up a few trips of fluke during the hot weather they would have to come ashore and go into the chicken business or something.

But for some reason that isn't apparent, these fluke, though running thick for several seasons, are most God-awfully small. Now it's all right enough to say that they get chased so hard that they don't have a chance to grow. But what the hell, they don't catch 'em all, not in any year. And if they did, then next season's run should be smaller, seems to us. But that isn't the way it works. Maybe they are a trifle larger, maybe there are a few larger ones among 'em, but they pretty near follow a pattern, season to season.

And don't let anyone tell us that they don't get enough to eat. If they didn't, they would sure as hell move to greener pastures, same as people!

Weather too Hot

For the rest of the list it is just too cussed hot! The fish show it by their movements. No man ever saw any finer scup than the larger culls which our party boats are landing as of now. An average of two pounds is common enough, if you take out the small ones. And they are just everywhere!

But whereas old-time hookers used to work the tides and anchor on a reef where they hove chum and baited two or more lines to a man, in these damned degenerate days you could fish just about 15 minutes like that. You would catch just about 15 fish and then you would have to move. The only way you can hook a strap-tub-full of scup is to drift, maybe for miles, and the same is pretty generally true of sea bass.

This is the first year in at least 28 to our certain knowledge that no boat of any kind hailed a swordfish offshore before the season actually began. It is the first year in that period when the first swordfish hit one of our big markets from Nova Scotia. And it is the first year, to the best of our knowledge and belief, when the shipments of swordfish from Nova Scotia exceeded in bulk the landings from domestic craft through the month of July. All of that has happened this year, and so help us, it is significant!

Our local swordfishermen have landed some fish. None of them had made a sensationally large trip up to the

last of the month. All of them had to run well to the eastward to get any fishing at all. But all the time the down-Easters have been fishing, and from the looks of the shipments they must have found 'em.

The prevailing price of sword has told a story, but from our position of observance we would not like to say whether it is Novy sword, sword from Japan or Peru or the appetite of the public that is responsible for the price level. Actually the July price has been about what we expect in August. But we will say this, such sword as we have eaten appears to be as good as ever it comes, not soft or flabby.

Stingarees and Sharks More Plentiful

While all this has been taking place we have noticed a thickening up of certain ocean trash that never has been numerous before in our experience, such as stingarees, and some varieties of shark. We always have had some, but not as many as this year so far as we recollect.

The question that comes to mind relevant to all this, is how long must this climatic condition continue before the Southern fish will head this way in quantity? It already is noticeable that tuna are more numerous in some places which they favor — not that the tuna is an especially valuable fish in these bearings. A gang of neighbors scooped up a few tons and got 4¢ a pound for 'em.

It would seem that if the water is too warm for the fish native to these bearings, it might suit some that prefer a higher temperature and thus stock our waters with new and foreign varieties. And on the other hand, we don't know, because we can't find out, whether the Southern waters are getting warmer, or whether the tropically-warm area is merely expanding. This last could be, we suppose, and it makes things all the more confusing.

Cape Cod Boats Begin Landing Swordfish

Cape Cod boats have begun landing swordfish, the first sizable trip having been brought in July 3 by the *Christine & Dan*. The craft unloaded 32 swordfish weighing 7,237 lbs. at Woods Hole. She got her trip in the Block Island area.

Tuna were plentiful in the Lower Cape region during July. The waters off Race Point Light were black with bait being chased by schools of tuna on the twelfth. According to one fisherman, as many as 50 boats, draggers, including even dories and skiffs equipped with outboard motors, were attracted to the area.

Scarcity of Cod Caused by Warm Water

The cod have just about deserted Cape Cod. The cod catch off the Cape is now running fifth in value behind haddock, ocean perch, sea herring and lobsters. Research biologist Clyde C. Taylor of the Woods Hole, Mass. Fish & Wildlife Service station says it's because Cape waters are getting warmer and the cod likes cold water.

Fish Waste Dumping at Provincetown

A request that Provincetown fishermen refrain from dumping fish waste overboard in areas of the harbor where it will float ashore, was issued recently by the Board of Health agent Joseph E. Matta. Fishermen were asked to see that the waste is far enough out so it will go past Long Point and out to sea.

Find Baby Haddock Protected by Jellyfish

Uncounted millions of baby haddock, averaging about an inch in length, apparently spend the early weeks of their life under the protection of jellyfish. The scientific party of the U. S. Fish and Wildlife Service research vessel *Albatross III* has reported the discovery of "millions" of baby haddock protected by jellyfish at depths of 35 fathoms in waters south of Nantucket.

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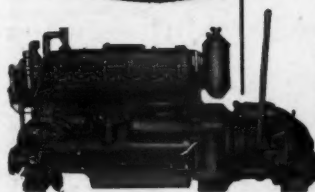
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Testing Brine Freezing Of Fish at Sea

Investigations are under way at the Pacific Fisheries Experimental Station of the Fisheries Research Board of Canada, Vancouver, B. C., on the application of brine freezing to the freezing of fish at sea. The brine used in the experiments is an eutectic solution of sodium chloride (common salt), i.e., one containing 23.3% sodium chloride by weight, which freezes at -6°F. to a homogeneous material (eutectic ice) without preliminary separation of either water ice (as from a weaker brine) or solid salt (as from a stronger brine).

The operating sequence consists of first cooling the brine to its freezing point, then freezing a considerable quantity of eutectic ice onto the evaporator. The fish is then immersed in the brine and frozen. The circulating pump operates throughout and maintains the brine temperature at -6°F. except for a few minutes when the fish is first introduced.

There are several reasons for freezing brine on the coils. Firstly, it permits cooling the brine to its freezing point, whereas in conventional brine coolers some margin of safety must be left to avoid freezing and plugging the heat exchanger. Secondly, it provides a reserve of refrigeration which prevents the rise of brine temperature when the fish is first introduced and gives up heat at a rate exceeding the capacity of the small condensing unit. Thirdly, it allows the condensing unit to operate in periods of no load or part load, providing refrigeration in the form of eutectic ice, for future use.

Attempts are being made to find if freezing at close to the eutectic freezing point has an effect on reducing salt penetration beyond that reduction which can be accounted for by the speed of freezing. A theory has been offered that if fish is immersed in a brine, the brine being held at its freezing point, no salt penetration can occur, since the removal of salt from the brine would reduce its concentration and hence raise its freezing point which would in turn freeze the brine, stopping the action. Freezing at the exact eutectic freezing point cannot be accomplished but it may be that freezing in close proximity to the eutectic freezing point will retard salt penetration. Results of the tests indicate this is true but they are not as yet conclusive.

If brine freezing proves practical it could provide a very compact and efficient freezing system for small craft. For example a tank 16 x 30 x 36 inches operated by a 5-hp. condensing unit could freeze 100 lbs. of fish per hour. Little structural alteration would be needed and the condensing unit would require few automatic controls and would operate with a minimum of attention.

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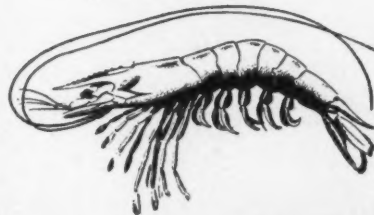
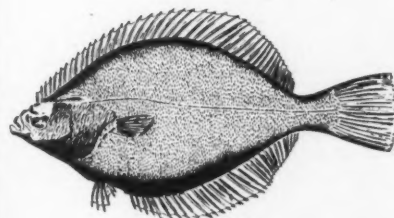
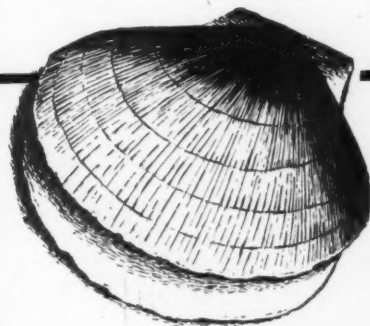
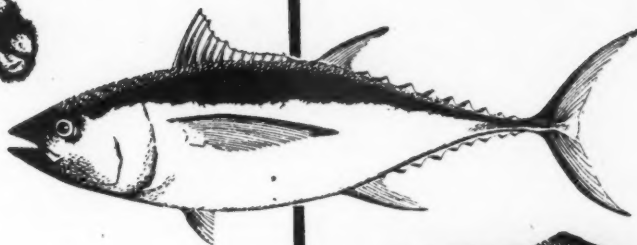
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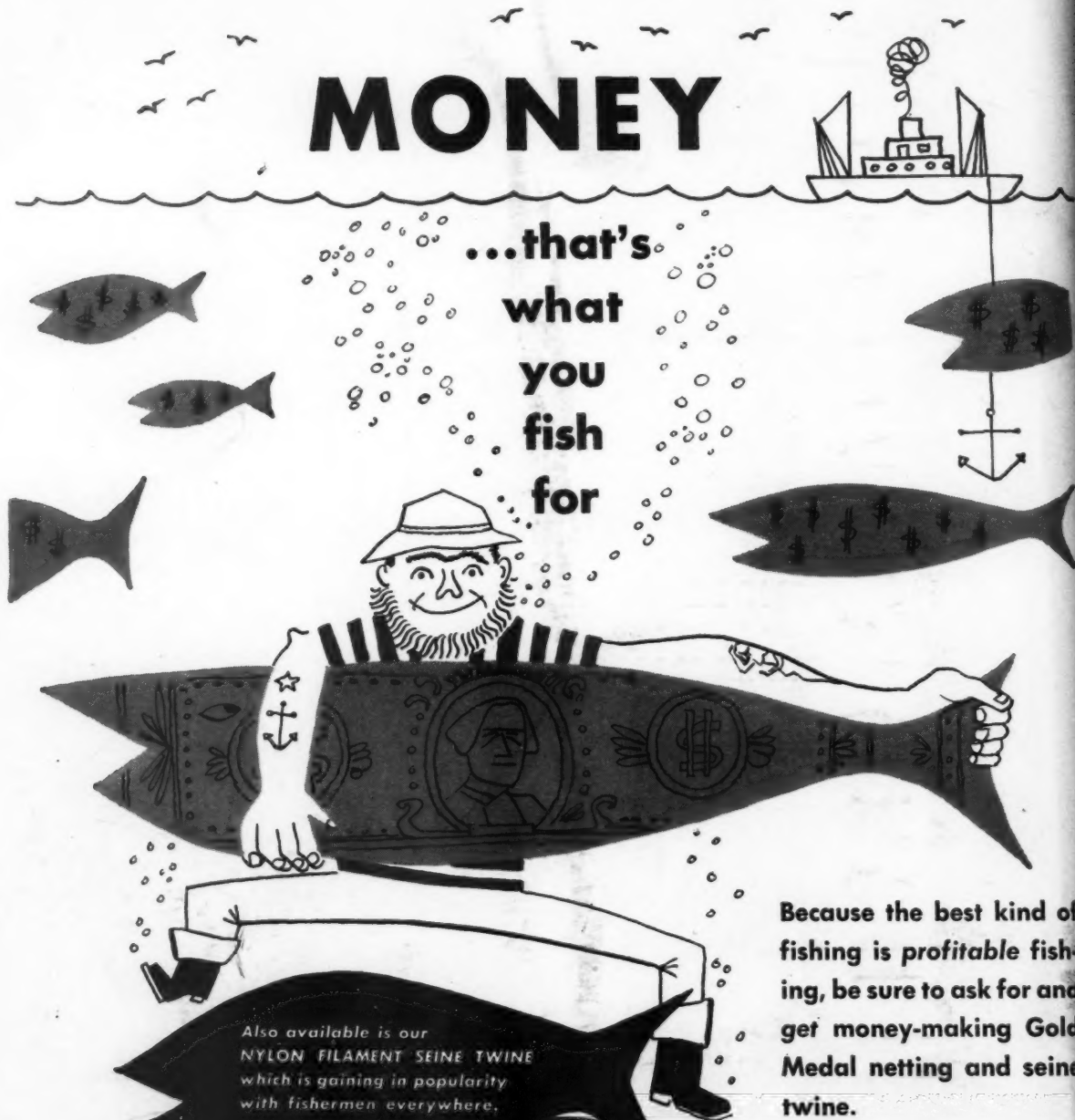
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